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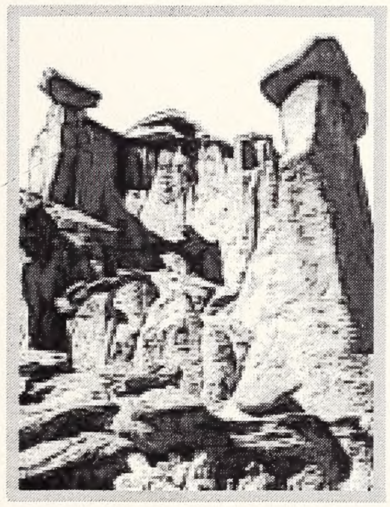
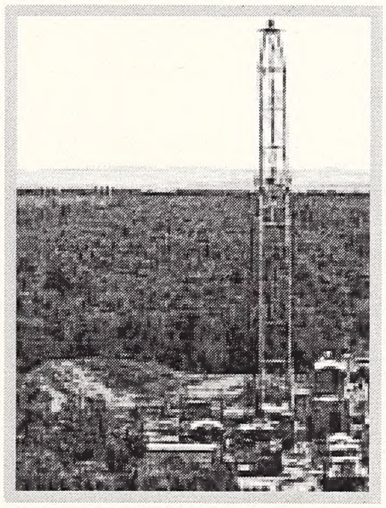
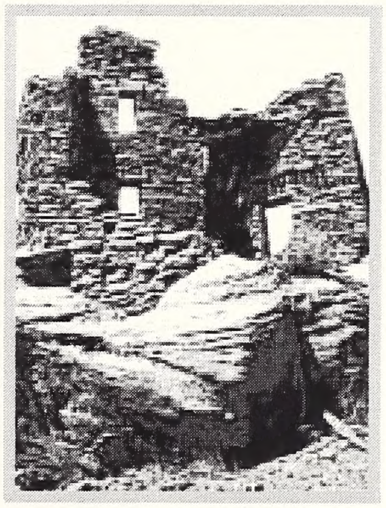
Farmington Proposed Resource Management Plan and Final Environmental Impact Statement

Volume II: Appendices







March 2003

U.S. Department of the Interior
Bureau of Land Management

Farmington Field Office
Farmington, New Mexico

BLM-NM-PL-03-014-1610

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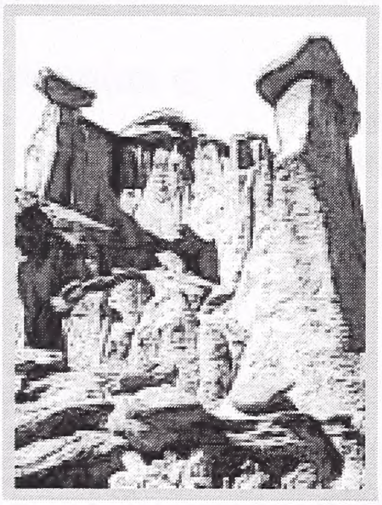
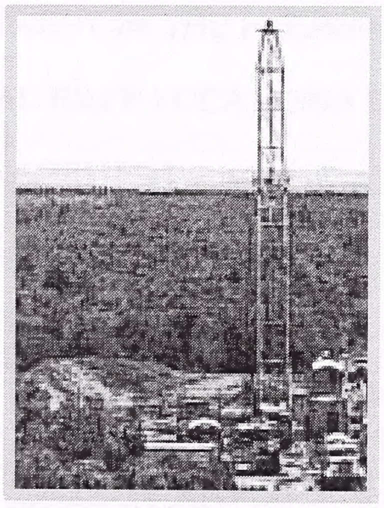
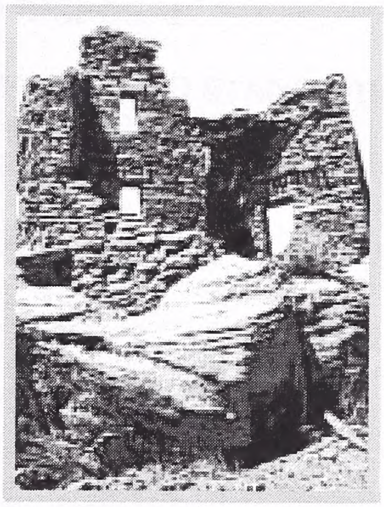

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March 3, 1849

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ACRONYMS AND ABBREVIATIONS

AACL	Acceptable Ambient Concentration Level
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACRV	air quality related values
AFO	BLM Albuquerque Field Office
APD	Application for Permits to Drill
AUM	animal unit month
ATV	all-terrain vehicle
BA	Biological Assessment
BACT	best available control technology
BHP	Broken Hills Proprietary Company, Limited
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BM II	Basketmaker II
BM III	Basketmaker III
BMP	Best Management Practice
BTU	British Thermal Units
CAA	Clean Air Act
CBM	coalbed methane
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CNF	Carson National Forest
CO	carbon monoxide
COA	Condition of Approval
CRMP	Cultural Resource Management Plan
CSU	Controlled Surface Use
CWA	Clean Water Act
DEIS	Draft EIS
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
ETZ	extraterritorial zone
FAR	functioning at risk
FFO	BLM Farmington Field Office
FLPMA	Federal Land Policy and Management Act
FY	fiscal year
GIS	Geographic Information System
GRTS	Glade Run Trail System
HABS	Historic American Buildings Survey
HAP	hazardous air pollutant
HMP	Habitat Management Plan
HUC	hydrologic unit code
$ISCST_3$	Industrial Source Complex Short Term
MEI	maximally-exposed individual
MLA	Mineral Leasing Act
MLE	most-likely exposure
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSA	Management Situation Analysis
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAPI	Navajo Agricultural Products Industry
NATICH	National Air Toxics Information Clearinghouse
NEPA	National Environmental Policy Act
NF	non-functional
NHP	National Historical Park
NHPA	National Historic Preservation Act
NMAAQS	New Mexico Ambient Air Quality Standards
NMAC	New Mexico Administrative Code
NMAQB	New Mexico Air Quality Bureau
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMEIB	New Mexico Environmental Improvement Board
NMOCD	New Mexico Oil Conservation Division
NM Tech	New Mexico Institute of Mining and Technology
NMWQCA	New Mexico Water Quality Control Act
NMWQCC	New Mexico Water Quality Control Commission
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOx	nitrogen oxides
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
NSO	No Surface Occupancy
NTL	Notice to Lessee
NWA	National Wilderness Area
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OHV	off-highway vehicle
OLM	ozone limiting method
ORV	off-road vehicle
P&A	plugging and abandonment
PAC	Protected Activity Center
PAH	polynuclear aromatic hydrocarbon
PFC	Proper Functioning Condition
PI	Pueblo I
PII	Pueblo II
PIII	Pueblo III
PIV	Pueblo IV
PIF	Partners in Flight
PILT	Payment in Lieu of Taxes
PL	Public Law
$PM_{2.5}$	particulate matter 2.5 microns or less
PM_{10}	particulate matter 10 microns or less
PNM	Public Service Company of New Mexico

PRIA	Public Rangelands Improvement Act
PRLA	Preference Right Lease Application
PSD	Prevention of Significant Deterioration
REL	Reference Exposure Level
RFDS	Reasonable Foreseeable Development Scenario
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
RNA	Research Natural Area
ROD	Record of Decision
ROI	Region of Influence
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
R&PP	Recreation and Public Purposes
SDA	Specially Designated Area
SFNF	Santa Fe National Forest
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJCC	San Juan Coal Company
SMA	Special Management Area
SMCRA	Surface Mining Control and Reclamation Act
SO$_2$	sulfur dioxide
SOx	sulfur oxides
SRHP	State Register of Historic Places
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
STATSGO	State Soil Geographic Database
STC	Standard Terms and Conditions
SUIT	Southern Ute Indian Tribe
SWAT	Soil-Water Analysis Tool
SWWF	southwestern willow flycatcher
TCP	traditional cultural property
TDS	total dissolved solids
T&E	threatened and endangered
TL	Timing Limitation
TSP	total suspended particulates
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USBR	U.S. Bureau of Reclamation
USC	United States Code
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
VRM	Visual Resource Management
WA	Wilderness Area
WRCS	Western Regional Corridor Study
WSA	Wilderness Study Area
WUG	Western Utility Group

MEASUREMENTS

° F	degrees Fahrenheit
bbls	barrels
Bcf	billion cubic feet
Bcfd	billion cubic feet per day
Bscf	billion standard cubic feet
dB	decibels
dBA	A-weighted decibels
gm/HP-hr	gram per horsepower-hour
gpm	gallons per minute
HP	horsepower
km	kilometer
kWh/m^2/day	kilowatt hours per meter squared per day
L$_{eq}$	equivalent sound level
Mcf	thousand cubic feet
MMcf	million cubic feet
µg/m^3	micrograms per cubic meter
mg/L	milligrams per liter
mi	miles
mi^2	square miles
mmt	million metric tons
Mscf	million standard cubic feet
ppm	parts per million
scf	standard cubic feet
TPY	tons per year
Tscf	trillion standard cubic feet

Appendix A

Summary of Decisions Carried Forward from Previous Plans

Previous Land Use Planning Decisions Brought Forward Without Change

Number	Name	Implemented	Rationale
1	Process Tree, Post, and Woodcutting Permits	Yes	Continue implementation. Meets public demand and BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 5400.
2	Issue Permits for Research and Collection	Yes	Permits formerly issued by Field Office now are issued by State Office.
3	Implement River Tracts SDA Prescriptions	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 6800, protects T&E species habitat.
4	Complete Reese Canyon RNA Plan	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 6800, protects T&E species habitat.
5	Implement Habitat Management Plans	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 6500.
6	Monitor and Implement Grazing Decisions	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 4120.
7	Review Grazing MOU With BIA and Tribe	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 4120.
8	Develop Watershed Activity Plans	Yes	Continue implementation. Meets BLM multiple use mandates as delineated in FLMPA. Conforms with BLM Manual 7220.
9	Implement Colorado River Salinity Program	Yes	Continue implementation. Required by Colorado River Basin Salinity Control Act.
10	Monitor Air, Water, and Soil Quality	Yes	Continue implementation. Provides data for compliance with Clean Water Act, Clean Air Act, conforms with BLM Manual 7000.
11	Resolve Navajo trespass occupancies within the Resource Area by exchange.	Yes	Continued implementation needed because of new unauthorized trespass.
12	Develop activity plans for existing communication sites on South Bluff, South of Aztec, Lybrook, South of Blanco, and on Huerfano Mountain.	Yes	This is a required lands program element. Huerfano Plan has been written. Others will be prepared as higher priority work permits.

Number	Name	Implemented	Rationale
13	Determine access needs and incorporate these needs into a transportation plan. Identify and rehabilitate all unnecessary roads.	No	Implementation needed due to extensive oil and gas road development throughout FFO. Rehabilitation needed to reduce erosion.
14	Review all lists of parcels submitted for simultaneous drawing, regular competitive and non-competitive offer to lease filings	Yes	BLM regulatory requirement performed prior to each oil and gas lease sale held by the NMSO.
15	Designated sites for material disposal, taking into account spacing between sites to reduce haul costs.	Yes	Continue implementation as part of program to upgrade/maintain oil and gas roads.
16	Conduct an intensive woodlands product inventory.	No	Implementation needed to identify areas with high fuel loads. Conforms to BLM Manual 9200. Implementation pending funding.
17	Provide forage for 23 wild and free roaming horses on the Rosa Community Allotment.	Yes	Continue implementation. Meets requirements of Wild Horse and Burro Act. Conforms to BLM Manual 4700.
18	Restrict surface-disturbing activities on identified fragile watersheds and manage for watershed values.	Yes	Implementation needed due to extensive oil and gas development throughout FFO boundaries.
19	Install water control structures where feasible.	Yes	Continue implementation to improve watersheds.
20	Continue to study rehabilitation measures for oil and gas drilling where past efforts have not been successful.	Yes	Continue implementation due to extensive oil and gas development in FFO boundaries.
21	Maintain existing water control structures.	No	Implementation when federal funds are available to maintain water structures.
22	Monitor the water quality of the larger ephemeral drainages with stream flow stations and peak flow gages.	Yes	Limited implementation. Information needed for the watershed program and assess impacts from oil and gas development.
23	Conduct a water quality survey of all developed ground waters and potential ground water developments such as seeps and artesian flows.	No	Information needed for watershed program and assess impacts from oil and gas development. Implementation pending funding.
24	Ensure that proper disposal of toxic waste from oil and gas wells are accomplished.	Yes	Implementation needed due to extensive oil and gas development throughout the FFO boundaries.

Number	Name	Implemented	Rationale
25	Continue to do mechanical treatments of sagebrush and pinyon-juniper woodlands for wildlife habitat improvement.	Yes	Continue implementation of vegetative treatments where needed. Meets multiple use mandate under FLPMA. Conforms to BLM Manual 6500.
26	Develop a River Management Activity Plan for the San Juan and recreation opportunities.	Yes	Recreation opportunities are available for some tracts. Conforms to BLM Manual 8300.
27	Develop a Cooperative Management Plan with other state and federal agencies for management of public lands around Navajo Lake.	Yes	Continue implementation. BLM manages subsurface while surface is managed by other agencies.
28	Quantify all BLM water use and secure state appropriative water rights.	Yes	This action is court-ordered and FFO must comply with this order (New Mexico v. United States, Civil No. 75-184 (11 Jud. Dist. NM) (San Juan Water Rights Adjudication).
29	Protect the physical and legal availability of all existing water sources on federal coal leases by appropriate lease stipulation.	Yes	Continue implementation. Required by OSM under SMCRA Regulations 30 CFR 780.18 and 780.21.
30	Reduce sediment and salinity in surface runoff by including best management practices in all activities in areas that contribute more than one AF/mi^2/yr of sediment.	Yes	Continue implementation due to extensive oil and gas development throughout FFO boundaries. Necessary to comply with Colorado River Basin Salinity Control Act and Clean Water Act.

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Appendix B
Specially Designated Areas (List Only)

Specially Designated Area	Resource Designation	Alternative A	Alternative B	Alternative C	Alternative D
1870s Wagon Trail	Cultural		✓	✓	✓
Adams Canyon	Cultural	✓	✓	✓	✓
Adolfo Canyon	Cultural	✓	✓	✓	✓
Ah-shi-sle-pah	Wilderness	✓	✓	✓	✓
Ah-shi-sle-pah Road	Cultural	✓	✓	✓	✓
Albert Mesa	Cultural			✓	✓
Alien Run Mountain Bike Trails	Recreation		✓	✓	✓
Andrews Ranch	Cultural	✓	✓	✓	✓
Angel Peak	Geology	✓	✓	✓	✓
Angel Peak	Recreation	✓	✓	✓	✓
Angel Peak	Wildlife			✓	✓
Ashii Na'a' a' (Salt Point)	Cultural		✓	✓	✓
Azabache Station	Recreation	✓	✓	✓	✓
Aztec Gilia	Threatened and Endangered Species	✓			
Badlands	Paleontology	✓			
Bald Eagle	Wildlife	✓	✓	✓	✓
Bee Burrow	Cultural	✓	✓	✓	✓
Beechatuda Tongue	Geology	✓	✓	✓	✓
Betonnie Tsosie	Paleontology	✓	✓	✓	✓
Bi Yaazh	Cultural	✓	✓	✓	✓
Big Star	Cultural	✓	✓		
Bis sa'ani	Cultural	✓	✓	✓	✓
Bisti/De-na-zin	Wilderness	✓	✓	✓	✓
Blanco Mesa	Cultural	✓	✓	✓	✓
Blanco Star Panel	Cultural	✓	✓	✓	✓
Bohanon Canyon	Paleontology	✓	✓	✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
Cabezon	Wilderness	✓	✓	✓	✓
Cabezon Peak	Recreation	✓	✓	✓	✓
Cagle's Site	Cultural	✓	✓	✓	✓
Cañon Jarido	Recreation	✓	✓	✓	✓
Canyon View	Cultural	✓	✓	✓	✓
Carracas Mesa	Recreation	✓	✓	✓	✓
Carrizo Cranes	Cultural	✓	✓		
Carson Fossil Pocket	Paleontology		✓	✓	✓
Casa del Rio	Cultural	✓	✓	✓	✓
Casa Mesa Diablo	Cultural	✓	✓		
Casamero Community	Cultural	✓	✓	✓	✓
Cedar Hill	Cultural			✓	✓
Cereza Canyon	Wildlife			✓	✓
Chacra Mesa	Cultural	✓	✓	✓	✓
Chamisa	Wilderness	✓	✓	✓	✓
Cho'li'i (Gobernador Knob)	Cultural	✓	✓	✓	✓
Christmas Tree Ruin	Cultural	✓	✓	✓	✓
Church Rock Outlier	Cultural	✓	✓	✓	✓
Cibola Canyon	Cultural	✓	✓		
Coal Belt	Minerals	✓			
Compressor Station Ruin	Cultural	✓	✓		
Continental Divide Trail	Recreation		✓	✓	✓
Cottonwood Divide	Cultural			✓	✓
Critical Big Game Habitat	Wildlife	✓	✓		
Cox Canyon	Wildlife			✓	✓
Crow Canyon	Wildlife	✓	✓	✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
Crow Canyon	Cultural			✓	✓
Crownpoint Steps and Herradura	Cultural	✓	✓	✓	✓
Cuba Airport	Lands	✓	✓	✓	✓
Deer House	Cultural	✓	✓	✓	✓
Delgadita-Pueblo Canyons	Cultural	✓	✓	✓	✓
Delgadito Mesa	Wildlife			✓	✓
Delgadito Pueblito	Cultural	✓	✓		
Devil's Spring Mesa	Cultural			✓	✓
Dogie Canyon School	Cultural	✓	✓	✓	✓
Dunes Vehicle Recreation Area	Recreation	✓	✓	✓	✓
Dzil'na'oodlii (Huerfano Mesa)	Cultural		✓	✓	✓
East La Plata	Wildlife			✓	✓
East Side Rincon Site	Cultural	✓	✓	✓	✓
Elk Springs	Wildlife	✓	✓	✓	✓
Empedrado	Wilderness	✓	✓	✓	✓
Empedrado Watershed	Watershed	✓	✓	✓	✓
Encierro Canyon	Cultural	✓	✓	✓	✓
Encinada Mesa-Carrizo Canyon	Cultural			✓	✓
Ensenada Mesa	Wildlife			✓	✓
Ephemeral Wash	Riparian		✓	✓	✓
Farmer's Arroyo Site	Cultural	✓	✓	✓	✓
Farmington Lake Watershed	Watershed	✓			
Foothold and Overlook Ruins District	Cultural	✓	✓		
Fossil Forest	Paleontology	✓	✓	✓	✓
Four Ye'i	Cultural	✓	✓	✓	✓
Frances Canyon	Cultural			✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
Frances Ruin	Cultural	✓	✓		
Glade Run	Recreation	✓	✓	✓	✓
Gobernador and Cereza Canyon	Paleontology	✓	✓	✓	✓
Gomez Canyon Ruin	Cultural	✓	✓		
Gomez Point	Cultural	✓	✓		
Gonzales Canyon-Senon S. Vigil Homestead	Cultural	✓	✓	✓	✓
Gonzales Mesa	Wildlife			✓	✓
Gould Pass Camp	Cultural	✓	✓	✓	✓
Greenlee Ruin	Cultural	✓	✓	✓	✓
Halfway House	Cultural	✓	✓	✓	✓
Haynes Trading Post	Cultural			✓	✓
Head Canyon	Recreation	✓	✓	✓	✓
Headcut Prehistoric Community	Recreation	✓	✓	✓	✓
Hill Road Ruin	Cultural	✓	✓		
Historic Homesteads	Cultural	✓	✓	✓	✓
Hogback, The	Threatened and Endangered Species	✓	✓	✓	✓
Holmes Group	Cultural	✓	✓	✓	✓
Hooded Fireplace and Largo School District	Cultural	✓	✓		
Huerfano Mesa	Cultural	✓			
Hummingbird	Cultural	✓	✓	✓	✓
Hummingbird Canyon	Cultural			✓	✓
Ignacio Chavez	Wilderness	✓	✓	✓	✓
Ignacio Chavez	Recreation	✓	✓	✓	✓
Indian Creek	Cultural	✓	✓	✓	✓
Jacques	Cultural	✓	✓	✓	✓
Jones Canyon	Cultural	✓	✓	✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
Juana Lopez	Geology	✓	✓	✓	✓
Kachina Mask	Cultural	✓	✓	✓	✓
Kin Nizhoni	Cultural	✓	✓	✓	✓
Kin Yazhi (Little House)	Cultural	✓	✓	✓	✓
Kiva	Cultural	✓	✓	✓	✓
Kutz Canyon	Paleontology	✓	✓	✓	✓
La Jara	Cultural			✓	✓
La Lena	Wilderness	✓	✓	✓	✓
Laguna Seca Mesa	Forestry	✓			
Laguna Seca Mesa	Wildlife			✓	✓
Lake Valley	Cultural	✓	✓	✓	✓
Largo Canyon Star Ceiling	Cultural	✓	✓	✓	✓
Log Jam	Paleontology	✓			
Lost Pine	Other	✓			
Lybrook Fossil Area	Paleontology		✓	✓	✓
Manzanares Mesa	Wildlife			✓	✓
Margarita Martinez Homestead	Cultural	✓	✓	✓	✓
Martin Apodaca Homestead	Cultural	✓	✓	✓	✓
Martinez Canyon	Cultural	✓	✓	✓	✓
Mexican Spotted Owl	Threatened and Endangered Species		✓	✓	✓
Middle Mesa	Wildlife			✓	✓
Morris 41	Cultural	✓	✓	✓	✓
Moss Trail	Cultural			✓	✓
Muñoz Canyon	Cultural			✓	✓
Navajo Lake Horse Trails	Recreation		✓	✓	✓
Negro Canyon	Recreation	✓	✓	✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
NM 01-39236	Cultural	✓	✓		
NM 01-39344	Cultural	✓	✓		
North Road	Cultural	✓	✓	✓	✓
Pelon Watershed	Watershed	✓	✓	✓	✓
Pierre's Site	Cultural	✓	✓	✓	✓
Piñon Mesa	Recreation		✓	✓	✓
Piñon Mesa Fossil Area	Paleontology	✓	✓	✓	✓
Pointed Butte	Cultural	✓	✓	✓	✓
Pork Chop Pass	Cultural			✓	✓
Pregnant Basketmaker	Cultural	✓	✓	✓	✓
Pretty Woman	Cultural	✓	✓	✓	✓
Prieta Mesa	Cultural	✓	✓	✓	✓
Rabbit Tracks	Cultural	✓	✓		
Rattlesnake Canyon	Wildlife			✓	✓
Reese Canyon	Threatened and Endangered Species	✓	✓	✓	✓
Right-of-Way Windows	Lands	✓	✓	✓	
Rincon Largo District	Cultural	✓	✓	✓	✓
Rincon Rockshelter	Cultural	✓	✓	✓	✓
River Tracts	Threatened and Endangered Species	✓	✓	✓	✓
Rock Garden	Recreation		✓	✓	✓
Rock House-Nestor Martin Homestead	Cultural	✓	✓	✓	✓
Romine Canyon	Cultural	✓	✓		
Rosa Mesa	Wildlife			✓	✓
Salt Point	Cultural	✓			
San Luis Cliffs Window	Lands	✓	✓	✓	✓
San Luis Mesa Raptor	Wildlife	✓	✓	✓	✓

		Alternative			
Specially Designated Area	**Resource Designation**	**A**	**B**	**C**	**D**
San Rafael Canyon	Cultural	✓	✓	✓	✓
Santos Peak	Cultural	✓	✓	✓	✓
Shephard Site	Cultural	✓	✓		
Shield Bearer	Cultural	✓	✓	✓	✓
Simon Canyon	Recreation	✓	✓	✓	✓
Simon Ruin	Cultural	✓	✓	✓	✓
Star Rock	Cultural			✓	✓
Star Spring/Star Spring-Jesus Canyon	Cultural	✓	✓	✓	✓
String House	Cultural			✓	✓
Superior Mesa Community	Cultural	✓	✓	✓	✓
Tapacito and Split Rock	Cultural	✓	✓	✓	✓
Thomas Canyon	Recreation	✓	✓	✓	✓
Toh-la-kai	Cultural	✓	✓	✓	✓
Torrejon Fossil Fauna	Paleontology	✓	✓	✓	✓
Truby's Tower	Cultural			✓	✓
Twin Angels	Cultural	✓	✓	✓	✓
Unreachable Rockshelter	Cultural	✓	✓		
Upper Kin Klizhin	Cultural	✓	✓	✓	✓
Ye'is-in-Row	Cultural	✓	✓		

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Appendix C
Unsuitability Criteria for Coal Leasing
(43 CFR 3461)

§ 3461.5 Criteria for assessing lands unsuitable for all or certain stipulated methods of coal mining.

(a)(1) *Criterion Number 1.* All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages.

(2) *Exceptions.* (i) A lease may be issued within the boundaries of any National Forest if the Secretary finds no significant recreational, timber, economic or other values which may be incompatible with the lease; and (A) surface operations and impacts are incident to an underground coal mine, or (B) where the Secretary of Agriculture determines, with respect to lands which do not have significant forest cover within those National Forests west of the 100th Meridian, that surface mining may be in compliance with the Multiple-Use Sustained-Yield Act of 1960, the Federal Coal Leasing Amendments Act of 1976 and the Surface Mining Control and Reclamation Act of 1977.

(ii) A lease may be issued within the Custer National Forest with the consent of the Department of Agriculture as long as no surface coal mining operations are permitted.

(3) *Exemptions.* The application of this criterion to lands within the listed land systems and categories is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

(b)(1) *Criterion Number 2.* Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, on federally owned surface shall be considered unsuitable.

(2) *Exceptions.* A lease may be issued, and mining operations approved, in such areas if the surface management agency determines that:

(i) All or certain types of coal development (e.g., underground mining) will not interfere with the purpose of the right-of-way or easement; or

(ii) The right-of-way or easement was granted for mining purposes; or

(iii) The right-of-way or easement was issued for a purpose for which it is not being used; or

(iv) The parties involved in the right-of-way or easement agree, in writing, to leasing; or

(v) It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(c)(1) *Criterion Number 3.* The terms used in this criterion have the meaning set out in the Office of Surface Mining Reclamation and Enforcement regulations at Chapter VII of Title 30 of the Code of Federal Regulations. Federal lands affected by section 522(e) (4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or institutional building or public park or within 300 feet of an occupied dwelling.

(2) *Exceptions.* A lease may be issued for lands:

(i) Used as mine access roads or haulage roads that join the right-of-way for a public road;

(ii) For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated;

(iii) If, after public notice and opportunity for public hearing in the locality, a written finding is made by the authorized officer that the interests of the public and the landowners affected by mining within 100 feet of a public road will be protected.

(iv) For which owners of occupied dwellings have given written permission to mine within 300 feet of their buildings.

(3) *Exemptions.* The application of this criterion is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

(d)(1) *Criterion Number 4.* Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

(2) *Exemption.* The application of this criterion to lands for which the Bureau of Land Management is the surface management agency and lands in designated wilderness areas in National Forests is subject to valid existing rights.

(e)(1) *Criterion Number 5.* Scenic Federal lands designated by visual resource management analysis as Class I (an areas of outstanding scenic quality or high vessel sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable.

(2) *Exception.* A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator has made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977, or which include operations on which a permit has been issued.

(f)(1) *Criterion Number 6.* Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

(2) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(g)(1) *Criterion Number 7.* All publicly or privately owned places which are included in the National Register of Historic Places shall be considered unsuitable. This shall include any areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register.

(2) *Exceptions.* All or certain stipulated methods of coal mining may be allowed if, after consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, they are approved by the surface management agency, and, where appropriate, the State or local agency with jurisdiction over the historic site.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(h)(1) *Criterion Number 8.* Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

(2) *Exceptions.* A lease may be issued and mining operation approved in an area or site if the surface management agency determines that:

(i) The use of appropriate stipulated mining technology will result in no significant adverse impact to the area or site; or

(ii) The mining of the coal resource under appropriate stipulations will enhance information recovery (e.g., paleontological sites).

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which includes operations on which a permit has been issued.

(i) (1) *Criterion Number 9.* Federally designated critical habitat for listed threatened or endangered plant and animal species, and habitat proposed to be designated as critical for listed threatened or endangered plant and animal species or species proposed for listing, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

(2) *Exception.* A lease may be issued and mining operations approved if, after consultation with the Fish and Wildlife Service, the Service determines that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(j)(1) *Criterion Number 10.* Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as endangered or threatened shall be considered unsuitable.

(2) *Exception.* A lease may be issued and mining operations approved if, after consultation with the state, the

surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(k)(1) *Criterion Number 11.* A bald or golden eagle nest or site on Federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

(2) *Exceptions.* A lease may be issued if:

(i) It can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or

(ii) The surface management agency, with the concurrence of the Fish and Wildlife Service, determines that the golden eagle nest(s) will be moved.

(iii) Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(l)(1) *Criterion Number 12.* Bald and golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable.

(2) *Exception.* A lease may be issued if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(m)(1) *Criterion Number 13.* Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

(2) *Exception.* A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the falcon habitat during the periods when such habitat is used by the falcons.

(3) *Exemptions.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(n)(1) *Criterion Number 14.* Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable.

(2) *Exception.* A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

(3) *Exemption.* This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977;

on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(o)(1) *Criteron Number 15.* Federal lands which the surface management agency and the state jointly agree are habitat for resident species of fish, wildlife and plants of high interest to the state and which are essential for maintaining these priority wildlife and plant species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

(i) Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;

(ii) Winter ranges crucial for deer, antelope, and elk;

(iii) Migration corridor for elk; and

(iv) Extremes of range for plant species; and

A lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

(2) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(p)(1) *Criterion Number 16.* Federal lands in riverine, coastal and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.

(2) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(q)(1) *Criterion Number 17.* Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

(2) *Exception.* A lease may be issued where the surface management agency in consultation with the municipality (incorporated entity) or the responsible governmental unit determines, as a result of studies, that all or certain stipulated methods of coal mining will not adversely affect the watershed to any significant degree.

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(r)(1) *Criterion Number 18.* Federal lands with National Resource Waters, as identified by states in their water quality management plans, and a buffer zone of Federal lands ¼ mile from the outer edge of the far banks of the water, shall be unsuitable.

(2) *Exception.* The buffer zone may be eliminated or reduced in size where the surface management agency determines that it is not necessary to protect the National Resource Waters.

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(s)(1) *Criterion Number 19.* Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in § 3400.0–5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved state programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

(2) *Exemptions.* This criterion does not apply to surface coal mining operations which produced coal in commercial quantities in the year preceding August 3, 1977, or which had obtained a permit to conduct surface coal mining operations.

(t)(1) *Criterion Number 20.* Federal lands in a state to which is applicable a criterion (i) proposed by the state or Indian tribe located in the planning area, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.

(2) *Exceptions.* A lease may be issued when:

(i) Such criterion is adopted by the Secretary less than 6 months prior to the publication of the draft comprehensive land use plan or land use analysis, plan, or supplement to a comprehensive land use plan, for the area in which such land is included, or

(ii) After consultation with the state or affected Indian tribe, the surface management agency determines that all or certain stipulated methods of coal mining will not adversely affect the value which the criterion would protect.

(3) *Exemptions.* This criterion does not apply to lands: To which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

[44 FR 42638, July 19, 1979, as amended at 47 FR 33148, July 30, 1982; 48 FR 54820, Dec. 7, 1983. Redesignated and amended at 52 FR 46473, Dec. 8 1987]

Appendix D
Bylaws of the San Juan Basin Public Roads Committee

Bylaws of the San Juan Basin
Public Roads Committee

ARTICLE I - NAME, LOCATION, AND DEFINITIONS

Section 1. The name of this Committee is the "San Juan Basin Public Roads Committee" (Committee), and membership in the Committee is provided in Article III.

Section 2. The principal office of the Committee shall be located at the Bureau of Land Management (BLM), Farmington Field Office (FFO), Farmington, New Mexico.

Section 3. Definitions

Authorized User: A person or entity (current oil and gas lease holder) authorized to use a Bureau road under an oil and gas lease, approved APD, R/W grant or other use agreement, or by law. A governmental entity (including the BLM) may be an authorized user, but for purposes of this policy, a member of the general public is not an authorized user.

Bureau (BLM): U.S. Department of Interior, Bureau of Land Management.

Bureau Road: A road located on public lands within New Mexico subject to BLM jurisdiction.

Collector Road: A Bureau road that normally provides primary access to large blocks of lands and connects with, or is an extension of, a public road system. A collector road accommodates mixed traffic and serves many uses. It generally receives the highest volume of traffic of all the roads in the Bureau road system. User cost, safety, comfort, and travel time are primary road management considerations. A collector road usually requires application of the highest road standards used by the BLM.

Local Road: A Bureau road that normally serves a smaller area than a collector road and connects to collector or public road systems. A local road receives lower volumes, carries fewer traffic types, and generally serves fewer uses. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. A low volume local road in mountainous terrain where operating speed is reduced by effect of terrain may be a single-lane road with turnouts.

Resource Road: A Bureau road that normally is a spur road to provide point access and connects to local or collector roads. It carries very low volume and accommodates only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. A resource road is constructed solely for the authorized user and is considered a primitive road to other users. The location and design of these roads are governed by environmental compatibility and the need to minimize costs, with secondary consideration to user cost, comfort, or travel time.

New Road: Any Bureau road that is constructed over undisturbed surface or over an existing primitive road.

Existing Road: Any Bureau road other than a new road. The repair/maintenance of an existing road shall not cause reclassification of the Bureau road to a new road.

Primitive Road: A non-engineered two-track Bureau road that is created by vehicle traffic.

Repair/Maintenance: The upkeep necessary for the appropriate and efficient utilization of the road system by the authorized users. It includes brush and obstruction removal, clean-out and repair or replacement of drainage structures to keep them functional, the upkeep of the roadway prism, which includes the road surface, shoulders, ditches and minor widening as needed for these purposes.

ARTICLE II - OBJECTIVE

Section 1. The objective of the Committee shall be to provide repair/maintenance to BLM collector roads in accordance with the definition for Repair/Maintenance as described under ARTICLE I, Section 3. Definitions. To do any and all things lawful, just and necessary to further the interest of the Committee in road repair/maintenance and related matters.

ARTICLE III- MEMBERSHIP

Section 1. There shall be no initiation fee or annual dues for membership.

Section 2. Membership in the Committee shall be held only by the Authorized Users on FFO administered BLM lands.

Section 3. There shall be kept a "Membership Allocation" for each Bureau collector road showing the wells held by each member and the associated pipelines as a part of the records of the Committee. Such records shall show: Company, number of wells and percentage; and shall be kept current annually (updates in June of each year). Records shall reflect all updates and changes and shall be provided by FFO to the Committee.

Section 3. Eligibility for membership shall be based on the following requirements:

a. Oil and gas lease holders of FFO - qualified list provided by BLM.

b. Each lease holder (company) shall appoint one (1) person to represent that company on the Committee.

c. The Assistant Field Manager (AFM) FFO, shall be a permanent, voting member of the Committee and shall serve as permanent Chairperson of the Committee.

ARTICLE IV - OFFICERS

Section 1. The Officers of the Committee shall consist of a Chairperson, Recorder, and Road Supervisors.

Section 2. Officers shall be as follows:

Chairperson - Federal Officer
Recorder - BLM Staff
Road Supervisor – an elected Industry representative that functions as the Road Supervisor for each individual Bureau collector road designated for repair/maintenance.

It shall be the duty of the AFM, as permanent Chairperson, to preside at all meetings of the Committee.

It shall be the duty of the Recorder to keep all records, meeting notes, etc., and conduct the correspondence of the Committee.

ARTICLE V - COORDINATION

Section 1. It shall be the duty of the Road Supervisor to be responsible for selecting a vendor, dispatching work, and approving completed work orders. All participants of this Collector Road Repair/Maintenance Agreement will coordinate all road activities through the Road Supervisors.

ARTICLE VI - MEETINGS

Section 1. The annual meeting for each Bureau collector road shall be held prior to May 31st. BLM will determine the users for each individual collector road and provide a preliminary list of these users prior to this meeting. During this meeting a Road Supervisor will be elected and the repair/maintenance needs of the Bureau collector road will be discussed.

Section 2. A second meeting will be held prior to June 30th to review cost estimates and priorities. A total annual expenditure limit for repair/maintenance will be set, as well as the maximum single expenditure that the Road Supervisor can authorize without securing the permission of a majority of the roads participants. Votes will be allocated to each company in proportion to the number of points they have in each Bureau road area. The BLM will be assigned 5% of the votes. If an activity requires obtaining the permission of a majority, all parties must first receive a written request for approval from the Road Supervisor. A majority will be secured when 50% or more of the available points and at least three (3) companies approve the request.

Section 3. At this meeting there will be additions and deletions to the point totals for each road participant.

Section 4. Special meetings will be held as needed.

ARTICLE VII - VOTING

Section 1. A two-thirds (2/3) majority of the percentage of distribution votes must be present to constitute a quorum for the meeting to be held.

Section 2. Each member is entitled to percentage of distribution votes as allocated by the annual June update of permit status as provided by BLM, FFO. The percentage of distribution is shown in Appendix A. A copy of their distribution shall be presented at annual meetings and shall be on file at the FFO.

Section 3. Voting by proxy or substitute representative is allowed. Proxy votes must be submitted in writing to the Recorder.

ARTICLE VIII - ROAD CONTRACTS

Section 1. The Committee shall be responsible for preparing and awarding the road repair/maintenance contracts for collector roads (shown on attached maps, Appendix B).

Section 2. The contracts will include but not be limited to the following categories:

a. Insurance requirements shall meet all companies' requirements.

b. Sealed bids (minimum of three (3) bids before award can be made).

c. Performance/termination clause and standards will be governed according to ARTICLE II, Section 1.

d. Length of contract (to be determined by the Committee) and the regional selection of a contractor for a minimum of two (2) years.

e. Renewal of contract - September 1st.

f. Billing - The Road Supervisor approves bills. The contractor will bill each company monthly as per their percentage of distribution. Each company shall make payment to the contractor within sixty (60) days.

g. Audit of the billings by the Committee as needed.

h. Safety is paramount.

i. Contractor will act as an independent contractor.

j. Contractor will be responsible for making New Mexico "One Calls".

ARTICLE IX - APPROVAL/DAMAGE LIABILITY

Section 1. The administration of the repair/maintenance standards and on-the-ground work will be supervised by the Road Supervisor and approved by BLM. The BLM will coordinate with the Road Supervisor on recommendations for corrections and/or any other needs. Standards for repair/maintenance work to be governed as defined in ARTICLE II, Section 1.

Section 2. Any user's actions that cause abnormal damage to a road segment(s) during, but not limited to, rig moves and pipeline construction will be solely responsible for all costs to return the road segment to its condition prior to the user's actions.

ARTICLE X - PAYMENT

Section 1. The oil and gas industry (operator, gatherers, and interstate gas transporters) provide 95% of the road funds, and the public, through the BLM, provide the remaining 5%. In the event of nonpayment of a company's share of funding responsibility, the Committee will inform the FFO to call those funds outstanding payable as per that company's bond or trespass action.

Section 2. The 95% industry share is to be split between the operators, gatherers, and transporters on a point system. One (1) point would be assigned to the operator of each well and CPD site, and one (1) point would be assigned to each gatherer for each active meter. In the case where the operator of a well is also the gatherer, then that company would only be assigned one (1) point for that well. Interstate gas transporters that have facilities accessed by collector roads will be assigned ten (10) points per mile of pipeline. Each company's share of road repair/maintenance for a particular collector road would be the sum of all of their points divided by the total number of points assigned to the road.

The BLM shall work with industry to determine the users for each individual collector road and the total number of points that are to be distributed among the users. This will determine the oil and gas industry's 95% participation in the total road costs. The bid process to be implemented will be as follows: After a collector road is selected for repair/maintenance and the approximate cost has been determined, industry representatives will solicit a minimum of three (3) bids. Based on the bid information submitted by the contractors a selection will be made. The selected contractor will be hired for a minimum of two (2) years. The Committee reserves the right to dismiss the selected contractor if the required work performance is not being met.

ARTICLE XI - AMENDMENTS

Section 1. Amendments to the Bylaws may be made only at the annual or special meetings by a two-thirds (2/3) majority of the percentage of distribution.

Section 2. Notification of amendment will be given to all members in writing thirty (30) days prior to vote.

ARTICLE XII - CONCURRENCE

We, the undersigned members of the San Juan Basin Public Roads Committee, agree to support the Bylaws.

BYLAWS OF THE
SAN JUAN BASIN PUBLIC ROADS COMMITTEE
SIGNATURE PAGE

We, the undersigned, member of the San Juan Basin Public Roads Committee, agree to support the Bylaws.

We appoint ________________________________ as our representative to serve as our voting member on the Committee.

Name: ________________________________ Date: ______________

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Appendix E
Noise Policy and Protocol (2 Versions)

DRAFT

(Alternative C)

Notice to Lessees and Operators on Onshore Oil and Gas Leases Within the Jurisdiction of the Farmington Field Office (FFO)

(NTL 03-1 FFO)

Management of Sound Generated By Oil and Gas Production and Transportation

I. Introduction – Increases in the level of sound (noise) generated from the production and pipeline transportation of oil and gas has occurred in the San Juan Basin over the last four years. This increase is generated primarily from the increased need to use equipment such as compressors and pumping units that operate on a continuous basis. The increase in noise affects natural resource values and management of a number of designated special areas [special management areas (SMAs), areas of critical environmental concern (ACECs), research natural areas (RNAs), etc.].

II. Purpose – The Bureau of Land Management (BLM) recognizes solitude (lack of or limited sound) as a part of the natural environment that requires protection and that reduction of noise may be required of federal oil and gas lessees/operators. The following requirements are for reducing noise levels on federal and Indian oil and gas leases under the jurisdiction of the Farmington Field Office (FFO).

III. Noise Sensitive Areas – All or a portion of 101 specially designated areas established through the BLM land use planning process are being identified as noise sensitive areas. Also, part or all of seven U.S. Forest Service (USFS) areas (Buzzard Park Campground, Cedar Springs Campground, Gasbuggy, Middle Mesa Raptor Area, Ulibarri Raptor Area, Munoz Canyon Raptor Area, and Carracas Mesa Administrative site), all Bureau of Reclamation (USBR) surface around Navajo Reservoir, and one National Park Service (NPS) area (Aztec Ruins National Monument) are identified as NSAs.

IV. Noise Standards – Noise will be measured on the "A" scale, using the attached protocol. The sound level (A scale) must equal 48.6 dB(A) over a continuous 24-hour period (i.e., 48.6 dB[A]Leq). This requirement applies to oil and gas lease operations that operate on a continual (> 8 hours/day), long-term basis (> 1 week in duration). The NTL **will not** apply to transient operations such as construction, drilling, completion or workover activities or temporary non-oil and gas sound sources. These activities will be handled on a case-by-case basis should a conflict be identified during the permitting process. The NTL does not apply to short-term events such as venting a well, compressor start-ups, etc.

For noise sources located inside NSAs, the standard is 48.6 dB(A)Leq, at 300 ft. in all directions from the noise source. For noise sources located outside of designated NSAs, the standard of 48.6 dB(A)Leq must be met at the boundary of the NSAs. Noise sources located within 300 feet of the NSA boundary will be allowed to meet the standard 300 feet from the source. For noise sources involving federal or Indian leases located near occupied dwellings or buildings, the standard of 48.6 dB(A)Leq will be met 100 feet from such structure. For noise sources located within incorporated city or township limits, the standards of that municipal jurisdiction will normally be applied. However, if the municipal standard is less stringent (> 48.6 dB(A)Leq) or there isn't a municipal standard, BLM will enforce this NTL for noise sources associated with federal minerals.

Stricter standards may be applied to NSAs identified by a double asterisk in Table 2-5. In these instances, BLM may need the flexibility to adjust the general noise standard. BLM, USFS, USBR, and NPS staffs will work with the operator on a case-by-case basis to achieve an acceptable level of noise mitigation. Factors considered in this process would be: (1) the particular aspects of the area (i.e., landscape, topography, etc.), (2) resource values and uses, (3) public values and uses and (4) the extent the 48.6 dB(A)Leq impairs values and uses. **The operator must obtain approval prior to setting or operating a noise source affecting these areas**. In addition to areas identified in Table 2-5, new SMAs, camping, picnic or trail areas may be identified and/or developed by land management agencies. This policy would be implemented in and/or near these areas after a 30-day notice to the affected parties.

With the exception of the NSAs identified by a double asterisk in Table 2-5, newly installed noise sources that affect NSAs (inside or adjacent to exterior boundaries) must meet the noise standard 30 days from the date the source is set in the field. All major renovation and/or replaced noise sources must meet the standard 30 days from the date the equipment is renovated and/or replaced. Existing noise sources affecting NSAs will be brought into compliance during a 5-year time frame. A condition of approval will be included with approved Applications for Permit to Drill (APDs) requiring the operator to meet the noise standard for sources at new well locations that are permitted within or adjacent to an NSA. It is the intention of FFO to apply these same standards to rights-of-way grants.

V. Procedures – Prior approval is required before setting a noise source that could affect the NSAs indicated by a double asterisk in Table 2-5. A Notice of Intent (NOI) Sundry (Form 3160.5) must be submitted to the BLM for approval by the authorized officer (AO). A copy of the NOI should be sent to the appropriate surface managing agency (SMA). The notice must include: (1) the location for the proposed noise source [township, range, section, footage or quarter/quarter (i.e., NE/4SE/4)], (2) name of the well location or facility type, (3) type of noise source (i.e., compressor, pumping unit, etc.) and (4) any other information required by the AO.

The appropriate surface managing agency will work with the applicant when setting the noise source in the NSAs indicated by a double asterisk in Table 2-5. The operator must provide BLM with noise level measurements within 24 hours of the unit being put into operation or as otherwise agreed to. Measurements must be taken following the attached protocol at points designated by BLM or the land management agency. The standard determined during the approval process must be met when the unit is put into operation.

With the exception of the NSAs identified by a double asterisk, a Subsequent Report Sundry (SR) will be required for the placement of all new noise sources or the exchange of all existing units within, or affecting designated NSAs that do not require an NOI. The SR must be submitted within 30 days of setting the unit. The SR must include the same information as an NOI, plus the date the unit was set in the field. **A notification Sundry is not required for noise sources that fall outside of the requirements of this and the previous paragraph.**

Variances may be granted on a case-by-case basis by the AO. To obtain a variance, a Notice of Intent Sundry (Form 3160.5) or a letter must be submitted to BLM for approval. Copies of the Sundry or letter should be sent to any appropriate surface managing agency. The sundry or letter must include the same information as an NOI.

Failure to comply with the above policy and conditions of approval may result in an assessment for noncompliance being issued pursuant to 43 Code of Federal Regulations (CFR) 3163.1 by BLM staff. Any and all instructions, orders, or decisions issued are subject to administrative review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3164 and 43 CFR 4.700.

APPROVED: Date: ____________ ______________________________

Farmington Field Manager

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(Alternative D)

Notice to Lessees and Operators on Onshore Oil and Gas Leases Within the Jurisdiction of the Farmington Field Office (FFO)

(NTL 03-1 FFO)

Management of Sound Generated By Oil and Gas Production and Transportation

I. Introduction – Increases in the level of sound (noise) generated from the production and pipeline transportation of oil and gas has occurred in the San Juan Basin over the last four years. This increase is generated primarily from the increased need to use equipment such as compressors and pumping units, which operate on a continuous basis. The increase in noise affects natural resource values and management of a number of agency designated special areas [special management areas (SMAs), areas of critical environmental concern (ACECs), research natural areas (RNAs), etc.]. Noise sensitive areas (NSAs) were determined as visitor use areas, wilderness, semi-primitive recreation areas, habitat for threatened or endangered species, raptor nesting/roosting sites, recreational trails and sites where people live and work.

II. Purpose – The Bureau of Land Management (BLM) recognizes solitude (lack of or limited sound) as a part of the natural environment that requires protection and that reduction of noise may be required of federal oil and gas lessees/operators. The following requirements are for reducing noise levels on federal and Indian oil and gas leases under the jurisdiction of the Farmington Field Office (FFO).

III. Noise Sensitive Areas – All or a portion of approximately 62 specially designated areas (SDA) established through the BLM land use planning process are being identified as noise sensitive areas (NSA).

IV. Noise Standards – Noise will be measured on the "A" scale, using the attached protocol. The sound level (A scale) must equal 48.6 dB(A) over a continuous 24-hour period (i.e., 48.6 dB[A]Leq). This requirement applies to oil and gas lease operations that operate on a continual (> 8 hours/day), long-term basis (> 1 week in duration). The NTL **will not** apply to transient operations such as construction, drilling, completion or workover activities or temporary non-oil and gas sound sources. These activities will be handled on a case-by-case basis should a conflict be identified during the permitting process. The NTL does not apply to short-term events such as venting a well, compressor start-ups, etc.

V. Application of Standards within NSAs – Noise control will be receptor- or boundary-focused, as determined by agency management guidelines established for the designated SMAs, ACECs, or other designations. Receptor-focused control will apply to 46 BLM and 4 USFS NSAs. Receptor-focused areas may include campgrounds, picnic areas, shoreline, etc. Boundary-focused control will include all designated acreage within 7 BLM (see Table 2-5), 3 USFS, and 1 NPS NSAs, in addition to all USBR land around Navajo Reservoir.

Receptor-Focused NSAs

- Noise standards of 48.6 dB(A)Leq will be achieved at established agency receptor points within the NSAs. Established receptors are generally defined as visitor use areas, camp or picnic areas, habitat for threatened or endangered species, archaeological sites, and recreation trails. Receptors may vary in size from a single point source to several acres based on the features and resource components that are being managed for sound. The agency will work with the operator to establish the applicable receptor points. Buffers of 0 to 100 feet from the defined receptor may be established. The SDAs within which receptors will be designated are as follows (*** notes areas where stricter standards may apply):

BLM Receptor-Focused NSAs

1. ***Andrews Ranch
2. ***Bee Burrow
3. ***Bis sa'ani
4. Bi Yaazh
5. Blanco Star Panel
6. Cagle's Site
7. ***Casamero Community
8. Christmas Tree Ruin
9. Church Rock Outlier
10. ***Crow Canyon
11. Delgadita-Pueblo Canyons
12. Dogie Canyon School
13. Encinada Mesa-Carrizo Canyon (Gomez Point, Gomez Canyon, Hill Road Ruin)
14. Frances Canyon (Frances Ruin)
15. Gonzalez Canyon-Senon S. Vigil Homestead
16. Halfway House
17. Haynes Trading Post
18. Holmes Group
19. ***Indian Creek
20. ***Jacques
21. ***Kin Nizhoni
22. Margarita Martinez Homestead
23. Martin Apodaca Homestead
24. ***Morris 41
25. Moss Trail
26. North Road (Segments 1,2,***6,7)
27. ***Pierre's Site
28. Rockhouse-Nestor Martin Homestead
29. San Rafael Canyon
30. Simon Ruin
31. Superior Mesa
32. Tapacito and Split Rock
33. ***Toh-la-kai
34. ***Twin Angels
35. ***Upper Kin Klizhen
36. Alien Run
37. ***Angel Peak
38. Glade Run
39. ***Navajo Lake Horse Trail
40. Negro Canyon
41. Piñon Mesa
42. ***Simon Canyon
43. ***Bald Eagle
44. Reese Canyon
45. River Tracts
46. Mexican Spotted Owl

USFS Receptor-Focused NSAs

1. ***Buzzard Park Campground
2. ***Cedar Springs Campground
3. ***Gasbuggy
4. Carracas Mesa Administrative Site

Boundary-Focused NSAs

- For noise sources located inside NSAs, the standard is 48.6 dB(A)Leq, at 400 feet in all directions from the noise source. For noise sources located outside of designated NSAs, the standard of 48.6 dB(A)Leq must be met at the boundary of the NSAs. Noise sources located within 400 feet of the NSA boundary will generally be allowed to meet the standard 400 feet from the source. The survey protocol described in this appendix will be used as a guide to measure sound sources. The SDAs that will be boundary-focused NSAs are as follows (*** notes areas where stricter standards may apply):

BLM Boundary-Focused NSAs

1. ***Cho'li'i (Gobernador Knob)
2. Dzil'na'oodlii (Huerfano Mesa)
3. Fossil Forest RNA
4. Carracas Mesa
5. Thomas Canyon (original acreage)
6. ***Ah-shi-sle-pah WSA
7. ***Bisti/De-Na-Zin Wilderness

USFS Boundary-Focused NSAs

1. Middle Mesa Raptor Area (prior approval required)
2. Ulibarri Raptor Area (prior approval required)
3. Munoz Canyon Raptor Area (prior approval required)

NPS Boundary- Focused NSA

1. ***Aztec Ruins National Monument

USBR Boundary- Focused NSA

1. All USBR land around Navajo Reservoir

Dwellings, Residences, and Buildings

- For noise sources involving federal or Indian leases located near occupied dwellings or buildings, the standard of 48.6 dB(A)Leq will be met 100 feet from such structure. Policy will not apply to unoccupied lands but can be enforced when those lands are developed. For noise sources located within incorporated city or township limits, the standards of that municipal jurisdiction will normally be applied. However, if there isn't a municipal standard, BLM will enforce this NTL for noise sources associated with federal minerals.

Stricter standards may be applied to NSAs identified by a double asterisk in Table 2-5. In these instances, BLM may need the flexibility to adjust the general noise standard. BLM, USFS, USBR and NPS staffs will work with the operator on a case-by-case basis to achieve an acceptable level of noise mitigation. Factors considered in this process would be: (1) the particular aspects of the area (i.e., landscape, topography, etc.), (2) resource values and uses, (3) public values and uses and (4) the extent the 48.6 dB(A)Leq impairs values and uses. In addition to areas identified in Table 2-5, new SMAs, camping, picnic or trail areas may be identified and/or developed by land management agencies. This policy would be implemented in and/or near these areas after a 30-day notice to the affected parties.

VI. Implementation of NTL – Upon implementation of the NTL, affected operators in or adjacent to NSAs will be provided general ownership maps depicting the NSAs. Detailed descriptions of the NSAs will be maintained and available at local administering agency offices. With the exception of the NSAs identified by a double asterisk in Table 2-5, newly installed noise sources that affect NSAs (inside or adjacent to exterior boundaries) must meet the noise standard 60 days from the date the source is set in the field. All major renovation and/or replaced noise sources must meet the standard 60 days from the date the equipment is renovated and/or replaced. A condition of approval will be included with approved Applications for Permit to Drill (APDs) requiring the operator to meet the noise standard for sources at new well locations that are permitted within or adjacent to an NSA. It is the intention of FFO to apply these same standards to rights-of-way grants.

For existing sources of noise within defined NSAs, the operator shall inventory these locations and submit them to the BLM along with a proposed compliance plan for meeting the NTL standard within 90 days of approval of the NTL. The compliance plan submitted by the operator must demonstrate compliance of all applicable noise sources within 5 years, which will incorporate the agency time frames compliance priority goals. All major renovation and/or replaced noise sources must meet the standard 60 days from the date the equipment is renovated and/or replaced. All major renovation and/or replaced noise sources must meet the standard 60 days from the date the equipment is renovated and/or replaced.

VII. Procedures – A subsequent report (SR) Sundry (Form 3160.5) must be submitted to the BLM for approval by the authorized officer (AO) within 5 days of setting the equipment, which falls outside the noise standard and must be mitigated. **A notification Sundry is not required for noise sources that fall outside of the requirements of this and the previous paragraph**. A copy of the SR should be sent to the appropriate surface managing agency. Prior approval is required before setting a noise source that could affect the threatened or endangered and raptor NSAs. The notice must include: (1) the location for the proposed noise source [township, range, section, footage or quarter/quarter (i.e., NE/4SE/4)], (2) name of the well location or facility type, (3) type of noise source (i.e., compressor, pumping unit, etc.), (4) serious safety considerations, and (5) any other information required by the AO.

- For existing and new noise sources the surface managing agency will initially work with the applicant to establish the applicable receptor points to which the NTL standard will apply. In addition, it is the intent of BLM to work with applicants and use flexibility for mitigation of sound with boundary-focused areas as well. Once the receptor is permanently defined based upon NSA maps provided by BLM, the operator must provide BLM with noise level measurements within the 60-day period and the standard determined during the approval process must be in conformance after this period. Measurements must be taken following the established protocol at points designated by BLM or other land management agencies.

Variances may be granted on a case-by-case basis by the AO. To obtain a variance, a Notice of Intent Sundry (Form 3160.5) or a letter must be submitted to BLM for approval. Copies of the

Sundry or letter should be sent to any appropriate surface managing agency. The sundry or letter must include the same information as an NOI.

Failure to comply with the above policy and conditions of approval may result in an assessment for noncompliance being issued pursuant to 43 Code of Federal Regulations (CFR) 3163.1 by BLM staff. Any and all instructions, orders, or decisions issued are subject to administrative review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3164 and 43 CFR 4.700.

APPROVED: Date: ____________ ______________________________
Farmington Field Manager

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NOISE SURVEY PROTOCOL TO DETERMINE COMPLIANCE WITH BLM FFO'S NOTICE TO LESSEE FOR NOISE

The BLM Noise standard of 48.6 dB(A) is a 24-hour A-weighted equivalent sound level (Leq), 300 feet from the noise source. This means that individual sound levels (SPL) taken at a point in time can exceed the numerical standard but when these individual SPL's are averaged logarithmically over a 24-hour period, they must be below the standard of 48.6 dB(A). This protocol may be used as the approach in determining whether a given facility is in compliance with this BLM FFO Notice To Lessee (NTL); however, other noise measurement methodologies are equally valid and may be used.

INSTRUMENTATION

1) A general purpose sound level meter (SLM) that meets ANSI Type 2 specifications as established in ANSI Policy S 1.4-1991 (R 1997) entitled "Specifications Sound Level Meters." A precision SLM that meets ANSI Type 1 specifications in the same policy referenced above is also acceptable.
2) An acoustical calibrator that meets ANSI Policy 1.25 – 1991 (R 1997).
3) A windscreen designed by the SLM manufacturer for shielding the microphone from wind-generated noise.

SURVEY PROTOCOL

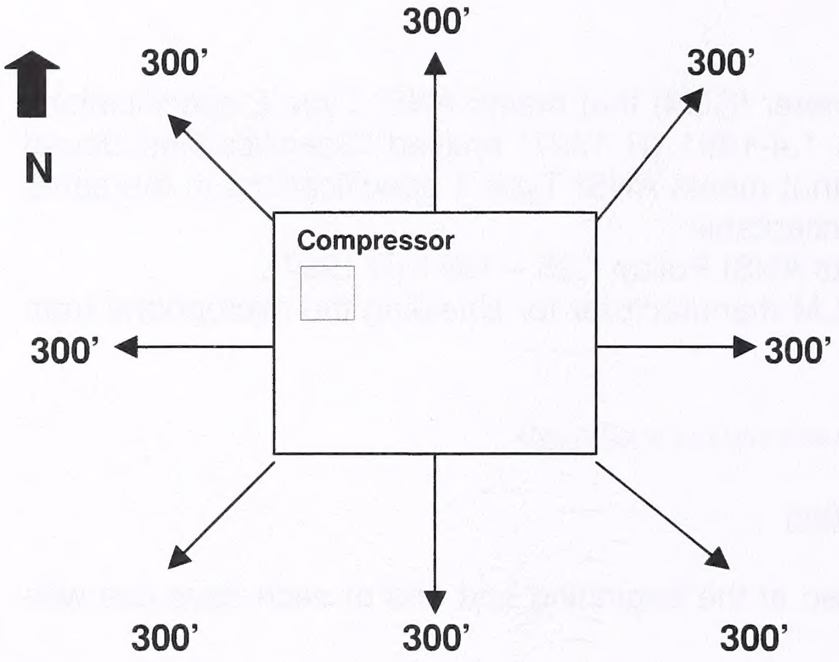
Instrument Setup and Calibration

1) The SLM shall be calibrated at the beginning and end of each days use with an acoustical calibrator;
2) The SLM shall be set to take noise measurements utilizing the "A-scale" weighting filter and the "Slow Response" exponential-time-averaging setting;
3) At the option of the surveyor, a SLM equipped with an octave band filter meeting the ANSI Policy S 1.11 – 1986 (R 1998) entitled "Specifications for Octave-Band and Fractional Octave-Band Analog and Digital Filters" can be used to take noise measurements. In using the octave band measurements, the surveyor must incorporate "A-weighted" adjustments to the measurement at each frequency and then add all individual octave band adjusted readings logarithmically to arrive at an equivalent "A-weighted" noise level (Leq).

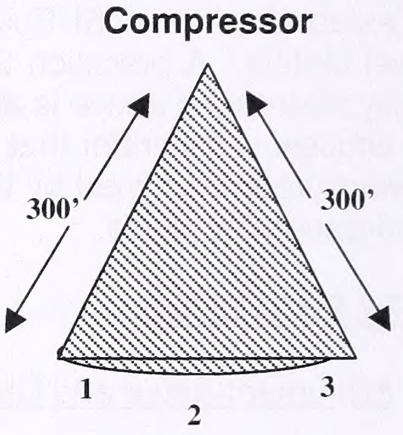
Survey Location

The noise survey shall be conducted at one or more compliance points as specified by the BLM stipulation/NTL. A noise source located inside a NSA requiring an Leq of 48.6 dB(A) time-weighted average at a distance of 300 feet in all directions from the source could be assessed for compliance purposes by taking eight (8) measurements in the manner depicted in example 1 below.

A noise source that requires an Leq of 48.6 dB(A) time-weighted average at a distance of 300 feet SSE and SSW of the compressor (direction of the receptor) could be assessed for compliance purposes by taking three (3) measurements in the manner depicted in example 2 below.



Example 1



Example 2

Measurement Techniques

1) All measurements utilizing the SLM should be taken with the windscreen in place.

2) The SLM should either be hand-held or placed on a tripod to collect measurements at a position comparable to the position of the human ear (i.e., approximately 1.5 meters above ground [4.9 feet]).

3) The SLM should normally be positioned vertically and, if hand-held, held at arms length away from the surveyor's body.

4) The surveyor should position his/her body perpendicular to the noise pathway so as NOT to shield the SLM from the source or reflect sound back towards the meter. In other words, the surveyor should not be in direct line with the noise source and the SLM.

5) Avoid taking noise measurements near a wall or other large object that might reflect sound back towards the meter and thereby affect the reading.

6) Avoid taking noise measurements when other temporary noise sources (i.e., aircraft, vehicular traffic, lawn equipment, farm equipment, etc.) could be adversely affecting the points being surveyed.

7) In order to avoid near-field distortion, avoid taking noise measurements closer than 20-25 feet from the noise source.

8) Caution must be exercised when two or more noise sources are impacting the area of concern.

9) When taking noise measurement for a noise source requiring 360^0 mitigation it is recommended that measurements be taken at the 8 cardinal and ordinal compass points.

Record keeping

1) Noise survey measurements, calibration readings, and other pertinent survey information should be recorded on a noise evaluation worksheet similar to that shown in Figure 1.

2) The surveyor should sign and date each survey in the designated space provided.

NOISE EVALUATION WORK SHEET

COMPANY:______________ FACILITY AND LOCATION:______________
AREA SURVEYED: ______________ SURVEY CONDUCTED BY:______________
TIME SURVEY STARTED:______________ TIME SURVEY ENDED:______________
SOUND LEVEL METER TYPE:__________MODEL:__________S/N:__________
CALIBRATOR TYPE:__________MODEL:__________S/N:__________
CALIBRATION LEVEL-INITIAL:__________FINAL:__________Δ DB:__________
DATE:______________

	MEASURED SOUND LEVELS dBA, SLOW RESPONSE										
	STARTING TIME FOR EACH MEASUREMENT SEQUENCE, HR										
MEASUREMENT LOCATIONS											

SKETCH OF LOCATION AND MEASUREMENT LOCATIONS

Ambient conditions:

Temperature ______________

Wind Direction ______________

Other:

SURVEYOR SIGNATURE/DATE

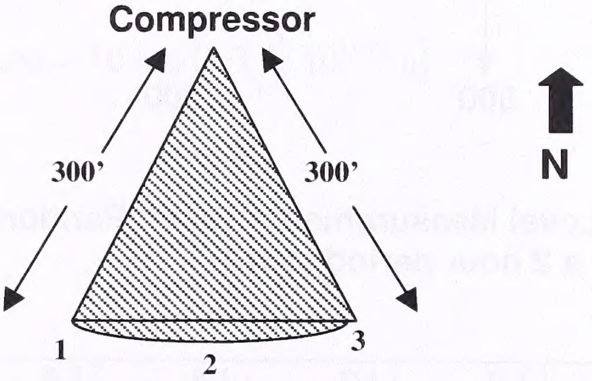
COMPLIANCE ASSESSMENT

The 48.6 dB(A) BLM standard is a 24-hour time-weighted average. As such, individual measurements taken throughout a 24-hour period are allowed to exceed this 48.6 dB(A) threshold but when averaged logarithmically over 24 hours, they must be below this Leq. The steps below provide two common sense approaches to determining compliance with this standard. Noise levels are not-to-exceed (NTE) 48 dB(A) during the hours between 9 PM and 6 AM and 58 dB(A) during the remainder of the 24-hour period.

1) Determine if random daytime noise level fall below 48.6 dB(A)

Since background sound levels tend to be higher during daylight hours due to human activity (i.e., vehicular traffic, aircraft noise, recreational vehicles, farming equipment, etc.), it can be presumed that if random daylight noise levels are below the 48.6 dB(A) threshold, then the 24-hour time-weighted average (LEQ) would also satisfy the Leq. Hence, the surveyor can take random daylight sound level readings at the compliance points and then apply statistical methods to the data to determine the compliance status of the location. Any reading above the 48.6 dB(A) level is cause for further investigation and evaluation.

The recommended minimum number of random survey points for satisfying a 95% confidence interval for compliance is 29. That means that any combination of random survey readings taken at 3-8 compliance points throughout the daylight hours. Given the previous example of a compressor with a BLM stipulation of a 48.6 dB(A) Leq at a 300 foot distance SSE and SSW of the compressor, the following example illustrates a compliance demonstration.

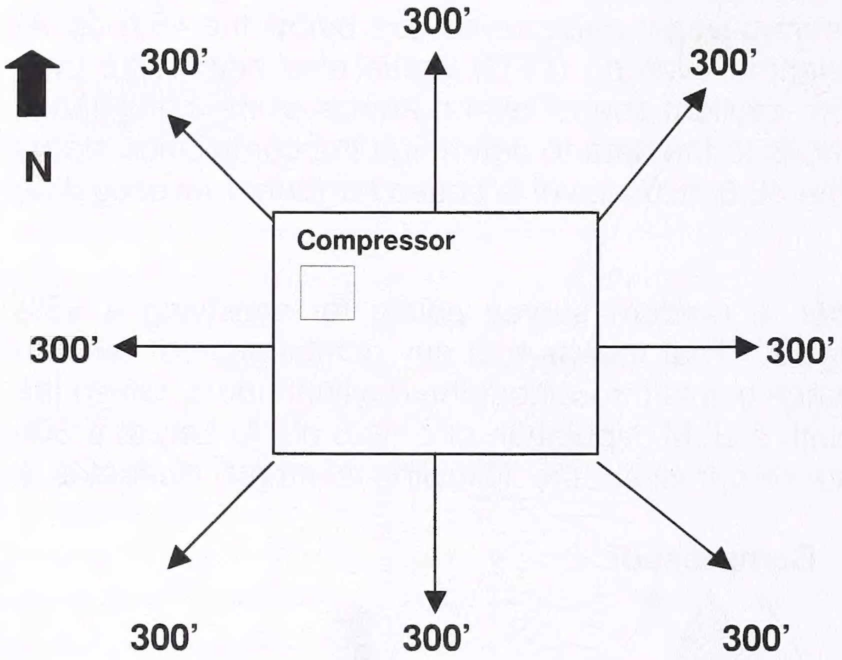


Individual Sound Level Measurements Taken Randomly Over a 2 hour period (dB(A))

LOCATION TIME & READING	L1	L2	L3
T1	8:00 – 48.2	8:04 – 49.1	8:08 – 48.4
T2	8:12 – 48.6	8:16 – 49.4	8:20 – 48.8
T3	8:24 – 47.8	8:28 – 48.3	8:32 – 47.9
T4	8:36 – 48.2	8:40 – 47.8	8:44 – 48.1
T5	8:48 – 49.3	8:52 – 50.1	8:56 – 49.5
T6	9:00 – 50.6	9:04 – 51.3	9:08 – 50.2

LOCATION	L1	L2	L3
TIME & READING			
T7	9:12 – 48.8	9:16 – 48.9	9:20 – 48.6
T8	9:24 - 47.8	9:28 – 48.7	9:32 – 48.2
T9	9:36 – 48.6	9:40 – 49.1	9:44 – 48.4
T10	9:48 – 47.8	9:52 – 48.2	9:56 – 47.9

Given the example of a noise source located inside a NSA requiring an Leq of 48.6 dB(A) time-weighted average at a distance of 300 feet in all directions from the source, the following example illustrates a compliance demonstration.



Individual Sound Level Measurements Taken Randomly Over a 2 hour period (dB(A))

LOCATION	L1	L2	L3	L4	L5	L6	L7	L8
TIME AND READING								
T1	8:00-48.2	8:04-49.1	8:08-48.4	8:12-48.6	8:16-49.4	8:20-48.8	8:24-47.8	8:28-48.3
T2	8:32-47.9	8:36-48.2	8:40-47.8	8:44-48.1	8:48-49.3	8:52-50.1	8:56-49.5	9:00-50.6
T3	9:04-51.3	9:08-50.2	9:12-48.8	9:16-48.9	9:20-48.6	9:24-47.8	9:28-48.7	9:32-48.2
T4	9:36-48.6	9:40-49.1	9:44-48.4	9:48-47.8	9:52-48.2	9:56-47.9	10:00-48.2	10:04-47.9

The mean noise level at the compliance points would be calculated by:

$$
\begin{aligned}
L_{mean} &= \sum_{i=1}^{N} L_I / N \\
&= (48.2+49.1+\ldots\ldots\ldots\ldots+48.2+47.9) \\
&= 48.75 \text{ dB(A)}
\end{aligned}
$$

The policy deviation around the mean noise level would be calculated by:

$$
\begin{aligned}
\sigma &= \sqrt{\left(\sum_{i=1}^{N} L_i^2 - \left(\sum_{i=1}^{N} L_I\right)^2 / N\right) / (N-1)} \\
&= 0.88
\end{aligned}
$$

2) Determine if the 24-hour A-weighted equivalent sound level (L_{Leq}) falls below the Leq.

This method involves taking continuous noise measurements at the compliance points throughout a 24-hour period and averaging them logarithmically to determine the overall L_{Leq} and comparing it to the Leq of the BLM noise standard. Since it is unrealistic to expect that a surveyor would be on site to measure and record noise levels over a 24-hour period, this method would utilize either an integrating SLM or dosimeters. These instruments arrive at a Leq by measuring noise levels over a discrete time period (e.g, 1 – 5 minutes) and then averaging these discrete measurements utilizing the following equation:

→

$$
Leq = 10 \log \left[1/T \sum_{i=1}^{N} 10^{Li/10} \, t_I \right]
$$

Where: T = total time

t_I = interval time

L_I = noise level at t_I

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Appendix F
Isolated Parcels Available for Disposal

Lands Remaining From 1988 RMP Disposal List

Legals	Acreage
T. 32 N., R. 10 W. NMPM	
Sec. 32: Lot 1	40.48
T. 32 N., R. 11 W. NMPM	
Sec. 10: Lot 1	43.83
Sec. 19: SE1/4NW1/4	40
Sec. 20: NW1/4SW1/4	40
T. 32 N., R. 12 W. NMPM	
Sec. 13: SE1/4SE1/4	40
Sec. 28: E1/2NE1/4, NE1/4SE1/4	120
Sec. 35: S1/2NE1/4	80
T. 32 N., R. 13 W. NMPM	
Sec. 35: E1/2SW1/4	80
T. 31 N., R. 11W. NMPM	
Sec. 13: NE1/4NE1/4	40
T. 31 N., R 12 W. NMPM	
Sec. 1: Lots 6 & 7	72.89
Sec. 25: N1/2NW1/4	80
T. 30 N., R.12 W. NMPM	
Sec. 1: Lots 5, 6, 7, 8	153.99
Sec. 15: Lots 1 & 2	80.45
Sec. 19: Lots 1, 60, SW1/4SW1/4NE1/4	78.78
Sec. 20: Lots 12, 14, 15 & 17	39.66
T. 30 N., R. 13 W., NMPM	
Sec. 20: NE1/4NW1/4, SW1/4NE1/4	80
Sec. 26: NW1/4SE1/4SE1/4SW1/4, SW1/4SW1/4SE1/4SW1/4	5
Sec. 27: NW1/4NW1/4SE1/4	10
Sec. 29: W1/2NE1/4	80
Sec. 32: E1/2NE1/4	80
Sec. 33: N1/2	320
Sec. 34: NE1/4NW1/4	40
T. 30 N., R. 15 W., NMPM	
Sec. 1: N1/2N1/2	160
Sec. 17: SW1/4SW1/4	40
Sec. 18: SE1/4SE1/4	40
Sec. 19: NE1/NE1/4, N1/2SE1/4NE1/4, N1/2S1/2SE1/4NE1/4	70
Sec. 20: NW1/4NW1/4, N1/2SW1/4SW1/4NW1/4 SE1/4SW1/4NW1/4, N1/2SW1/4NW1/4	75

T. 30 N., R. 16 W., NMPM	
Sec. 2: Lots 3 & 4, S1/2NW1/4	157.84
T. 29 N., R. 9 W., NMPM	
Sec. 30: Lot 6	10.47
T. 29 N., R. 11 W., NMPM	
Sec. 13: NE1/4SW1/4	40
Sec. 15: SW1/4NW1/4	40
Sec. 27: W1/2 SE1/4SW1/4SW1/4	5
Sec. 28: SE1/4SW1/4, SW1/4SE1/4	80
Sec. 33: N1/2NW1/4NE1/4NE1/4	5
T. 29 N., R. 12 W., NMPM	
Sec. 5: SE1/4NE1/4SW1/4	10
Sec. 17: NE1/4NE1/4SW1/4	10
Sec. 19: S1/2SE1/4NE1/4SW1/4, SW1/4SE1/4 NE1/4	15
Sec. 20: NE1/4NE1/4SW1/4	10
Sec. 21: Lots 10, 11, & 12	55.47
Sec. 26: Lot 1	19.96
Sec. 27: N1/2N1/2NE1/4, SE1/4NW1/4NE1/4, SW1/4NE1/4NE1/4, E1/2SE1/4NE1/4NE1/4, E1/2SW1/4NW1/4NE1/4	70
Sec. 28: Lot 2	6.2
T. 29 N., R 13 W., NMPM	
Sec. 4: SW1/4NW1/4NE1/4	10
Sec, 5: Lot 6, SE1/4NE1/4SW1/4	19.98
Sec. 6: Lot 9, W1/2SW1/4SE1/4	24.95
Sec. 7: Lot 1, NW1/4NW1/4NE1/4, W1/2SW1/4NW1/4NE1/4	19.64
Total	2639.59

Appendix G

Example of Conditions of Approval and Standard Terms and Conditions for Oil and Gas Leasing Development in the Farmington Field Office

BLM CONDITIONS OF APPROVAL

Operator____________________________ Well Name____________________________

Legal Location____________________________ Sec. ________ T. _____ R. _______

Lease Number____________________________ Field Inspection Date__________________

The following conditions of approval will apply to this well unless a particular Surface Managing Agency (SMA) or private surface owner has supplied to BLM and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.1 or 3163.2. A copy of these conditions of approval shall be present on the location during construction, drilling and reclamation activity.

An agreement between the operator and fee land owner will take precedence over BLM surface stipulations unless (In reference to 43 CFR Part 3160) 1) BLM determines that the operator's actions will affect adjacent Federal or Indian surface, or 2) the operator does not maintain well area and lease premises in a workmanlike manner with due regard for safety, conservation and appearance, or 3) no such agreement exists, or 4) in the event of well abandonment, minimal Federal restoration requirements will be required.

1. *The operator or his contractor will contact the BLM Farmington Field Office, Environmental Protection Staff, at (505) 599-8900, (approximately 48 hours prior to construction activities) or (upon site completion prior to moving on drilling rig).*

2. No construction, drilling or completion activities shall be conducted between:
   November 1 and March 31 because of eagle wintering habitat.
   December 1 and March 31 because of deer/elk wintering habitat.
   March 1 to June 30 because of active raptor nesting.
   May 1 to July 15 because of antelope fawning.

3. A __ (foot) tree screen will be left on the ___ sides of the location.

4. The top ____ inches of soil material will be stripped and stockpiled in the construction zones of the well pad. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to reseeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

5. Pits will be lined with an impervious material at least 8 mils thick. Prior to closing the pit, the liner will be cut off at mud level. The excess liner will be hauled to a licensed disposal area.

6. Pits will be lined with an impervious material at least 8 mils thick. Prior to closing the pit, the liner will be cut off at mud level. The excess liner will be hauled to a licensed disposal area.

7. Earthen berm(s) will be placed on the _____ side(s) of the location between the reserve pit and the wash.

8. The __ corner of the well pad will be rounded off to avoid

9. The wash shall be diverted around the ___ side of the well pad.

10. Diversion ditch(es) will be constructed on the _ side of location above/below (circle one) the cut slope, draining to the__.

11. A culvert of sufficient size (minimum 18 inches) will be placed where the drainage crosses the access road.

12. The proposed access road shall utilize the upgraded 2-track trail approximately ___(feet or miles) as agreed upon during on-site inspection. Remainder of planned access road will follow flagged route.

13. The access road shall be rerouted around the ___ edge of the well pad during construction and drilling activities for safety reasons. Upon completion of drilling and cleanup, the road will be returned to its original alignment.

14. The final cut slope shall not exceed a ___ ratio. The final fill slope shall not exceed a ___ ratio. To obtain this ratio, pits and slopes shall be backsloped into the pad upon completion of drilling. Construction slopes can be much steeper during drilling, but will be recontoured to the above ratio during reclamation. **Production equipment [including any facilities associated with pipeline construction] shall be placed on location as not to interfere with reclaiming the cut and fill slopes to their proper ratio. If equipment is found to interfere with the proper reclamation of the slope, the company will be required to move the equipment so proper recontouring can occur.**

15. All above ground structures shall be painted to blend with the natural color of the landscape. The paint used shall be:
   a. Federal 595a-34127 (Juniper Green)
   b. Munsell Soil Color 5Y 6/1 (Slate Gray)
   c. Munsell Soil Color 2.5Y 6/2 (Carlsbad Canyon Brown).
   d. Munsell Soil Color10YR 6/3 (Desert Brown)
   e. The leg-off will not be painted the above color, but instead shall be left unpainted such that the rusty finish on the pipe would blend in with the surroundings.

16. Hand seeding with hydro-mulch, excelsior netting and/or mulch with netting __ required on __ slopes. Mulch should be grass or straw spread at 2,000 to 3,000 pounds per acre (or one to two inches deep).

17. No hardwood tree with a diameter of ten inches or more at the base or any Ponderosa pine, Douglas-fir or aspen tree is to be removed or damaged without approval from the BLM Authorized Officer (AO).

18. If in the conduct of operations, paleontological materials (fossils) are observed, lessee shall immediately contact the BLM. Lessee shall cease any operations that would result in the destruction of such objects. The results of further investigation will dictate site-specific stipulations for avoidance or salvage of any potentially significant paleontological resources.

19. The proximity of residences in the area places this well location under Zone 2 noise mitigation requirements. This requires that the operator file a sundry notice prior to placing a compressor unit on location (should one be needed during the production phase of this well).

The sundry notice will include information on why the compressor is needed, the estimated time the compressor will be in use, and the manufacturer's data (size of unit, horsepower, model type and type of motor). A 1:2400 (7.5 minute series) map will be submitted with the sundry. The map will show the proposed compressor location and all noise sensitive areas (fee surface, residences, schools, churches, farms, known ACECs and SMAs, etc.) within a two-mile radius of the well location. In addition, a 24-hour time weighted average, background noise survey may be required.

***Adjust stipulation wording for Zone 1 or Zone 3.

20. No well and/or production equipment within the irrigable fields of the Navajo Indian Irrigation Project will exceed two feet above the natural ground surface elevation, and will be adequately barricaded for safety.

21. All cattleguards shall have grid identification marks welded into them indicating ownership and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASTHO) load rating H-20, although AASTHO U-80 rated grids shall be required where heavy loads, (exceeding H-20 loading) are anticipated. (See BLM standard drawings for cattleguards). Cattleguard grid width shall not be less than eight feet and length of not less than 14 feet. A wire gate with a minimum width of 16 feet will be provided on one side of the cattleguard.

22. Standards for Cattleguards: All cattleguards must have clearly visible identification marks welded into them indicating the ownership, wellname and number associated with the cattleguard.

23. Trees shall be delimbed and trunks stacked on the side of well pad for wood gatherers. Limbs shall be stockpiled on one corner of the location for future rehabilitation of well pad. After reseeding, limbs shall be placed back on the slopes and walked down or chipped for mulch.

24. All trees, 6 inches diameter or less, and brush will be incorporated into fill for erosion control; trees, 6 inches diameter or greater, will be cut and delimbed; trunks will be left whole along access or existing road for wood gathering; and slash will be put back on pad cut and fill slopes after reseeding.

25. Prior to crossing, using or paralleling any improvement on public land, operator shall contact the owner of the improvement to obtain mitigating measures to prevent damage to the improvements.

26. All cut fences are to be tied to H-braces prior to cutting. The opening will be protected as necessary during construction to prevent the escape of livestock. A temporary closure will be installed on all cut fences the same day the fence is cut. A permanent cattleguard will be installed and maintained in any cut fence unless otherwise stipulated in writing. A 16-foot gate will be installed adjacent to all new cattleguards.

27. If surface owner changes any of these conditions of approval, company will contact the AO before implementing surface owner stipulations.

28. **During clearing activities, trees in piñon-juniper type vegetation removed from the well pad and access road shall be made available for wood gathering and slope stabilization.** Trees shall be moved aside prior to any soil disturbing activities. Care will be taken not to mix soil with the trees. Trees left for wood gathering shall be cut [twelve inches or less from the ground], delimbed, and the trunks, **6 inches or more in diameter** shall be removed and placed either by the side of the access road [opposite the proposed pipeline], or moved to the end of the road, or to a road junction for easy access for wood gatherers and to reduce vehicle traffic on the well pad. **Trees with a trunk diameter less than 6 inches shall be used to stabilize slopes and control erosion.** These trees may be removed entirely without delimbing and placed within the construction zone of the pad. During reclamation these trees will be placed on the construction slopes, on the reserve pit area, and the parts of the pad not used for production purposes. The trees will be walked down.

29. Reserve pits will be closed and rehabbed 90 days after completion or 120 days after the well is spudded. All reserve pits remaining open after the 90 days will need written authorization from the AO. This requirement is addressed in the General Requirements of Onshore Order # 7.

30. Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a twelve inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the AO. When compressor units are washed, or any other equipment associated with the locations, the fluids (i.e., scrubber cleaners) will be properly disposed of to avoid ground contamination or hazard to livestock or wildlife.

Rights-of-Way Special Stipulations for Roads and Pipelines

1. The proximity of residences in the area places this well location under Zone 2 noise mitigation requirements. This requires that the operator file a sundry notice prior to placing a compressor unit on location (should one be needed during the production phase of this well.

2. The sundry notice will include information on why the compressor is needed, the estimated time the compressor will be in use, and the manufacturer's data (size of unit, horsepower, model type, and type of motor). A 1:24000 (7.5-minute series) map will be submitted with the sundry. The map will show the proposed compressor location and all noise sensitive areas (fee surface, residences, schools, churches, farms, known ACECs and SMAs, etc.). Within a two-mile radius of the well location. In addition, a 24-hour time weighted average, background noise survey may be required.

***Can adjust wording to suit your requirements.

This approval is for operational activities only. Surface commingling and/or off-lease sales, storage, usage and measurement require separate approval by the AO.

3. Construction activities and surface disturbance will be prohibited during the period from

   A. November 1 to March 31 for the protection of eagle winter habitat.
   B. December 1 to March 31 for the protection of deer and elk winter habitat.
   C. March 1 to June 30 for the protection of an active raptor nest site.
   D. May 1 to July 15 for the protection of antelope fawning.

Exceptions must have prior written approval from the AO.

4. Performing construction maintenance activities outside the existing disturbed area of the existing road requires a cultural survey and clearance.

5. The holder shall contact the AO at least three (3) days prior to commencing construction and/or any surface disturbing activities (____ may want to be present). The AO may require and schedule a preconstruction conference with holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way. The holder and/or their representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with this right-of-way shall also attend this conference to review the stipulations of the grant including the plan(s) of development, as applicable.

6. Performing construction maintenance activities outside the existing disturbed area of the existing road requires a Threatened or Endangered plant survey and clearance.

7. The AO shall require and schedule a preconstruction conference with the holder prior to commencing construction and/or surface disturbing activities on the right-of-way. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plan(s) of development, as applicable.

At least five days prior to this conference, the holder shall provide maps or survey plats of this project to operators of all pipelines crossed or paralleled on public/Federal lands, and contact and invite them to attend this meeting. Determining the names and contact points of these operators is the responsibility of the holder. If requested holder shall certify these contacts were made and that the required information was given.

8. The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plans(s) of development which was (were) approved and made part of the grant on __. Any relocation, additional construction, or use that is not in accord with the approved plan(s) of development, shall not be initiated without the prior written approval. A copy of the complete right-of-way grant, including all stipulations and approved plan(s) of development, shall be made available on the right-of-way area during construction,

operation and termination to the AO. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety of the environment.

9. The holder shall not initiate any construction or other surface disturbing activities on the right-of-way without prior written authorization. Such authorization shall be a written Notice to Proceed (Form 2800-15) issued by the AO. Any Notice to Proceed shall authorize construction or use only as therein expressly stated and only for the particular location or use therein described.

10. Boundary adjustments in ____ shall automatically amend this right-of-way to include that portion of the facility no longer contained within the above described __). In the event of an automatic amendment to this right-of-way grant, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate shall be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendments.

11. The pole structure of the powerline shall be constructed as illustrated in the drawings submitted in the application for this right-of-way and included in this grant as Exhibit __. Any deviation from the illustration specifications requires written approval of the AO.

12. Unless otherwise agreed to by the AO in writing, powerlines shall be constructed in accordance to standards outlined in “Suggested Practices for Raptor Protection on Powerlines,” Raptor Research Foundations, Inc., 1981. The Holder shall assume the burden and expense of proving that pole designs not shown in the above publication are “eagle safe.” Such proof shall be provided by a raptor expert approved by the AO. The BLM reserves the right to require modifications or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

13. Clearing, grading and other disturbance of soil and vegetation shall be limited to the minimum area required for construction, and shall include:

A. A maximum width of __ feet.

B. Trimming trees in preference to cutting trees and cutting trees in preference to bulldozing them as directed by the AO.

C. Not clearing trees to allow passage of equipment for stringing the line without the prior written approval of the AO.

D. That trees, in piñon-juniper type vegetation, cleared from the right-of-way shall be left for wood gathering activities. The trees shall be moved aside prior to any soil disturbing activities. Do not mix soil with the trees during right-of-way clearing. The trees shall be delimbed and the trunks shall be moved and placed either by the side of the right-of-way, if it parallels a road, or moved to the end of the right-of-way for easy access for wood gatherers and to prevent vehicular travel on the R/W.

After reseeding, the branches shall be placed back on the R/W and "walked down" or chipped. Any rocks removed from the construction area during clearing and/or ditching operations shall be scattered back on the right-of-way in a random arrangement and not in bunches. Redistributing these materials on the right-of-way during reclamation activities shall be accomplished by using rubber-tired equipment.

E. That clearing the right-of-way in vegetative types, other than piñon-juniper types (i.e., sagebrush flats) shall consist of knocking (scalping) off the tops of brush or removal of all plant parts only at pole locations.

14. If "cross-country" access is necessary, clearing vegetation or grading a roadbed will be avoided wherever practicable. All construction and vehicular traffic shall be confined to the right-of-way or designated access routes, roads, or trails unless otherwise authorized in writing by the AO. All temporary roads used for construction shall be rehabilitated after construction is completed. Only one road or access route will be permitted to each site requiring access.

15. If the right-of-way is separate from any permanent access, roads shall not be constructed within the right-of-way where the terrain will allow vehicles to maneuver without the aid of such roads.

16. The holder shall coordinate with the AO on the design and color of the poles and transmission lines to achieve the minimal practicable visual impacts.

17. The holder shall use non-reflecting lines and conductors at the following location(s):

18. Construction holes left open over night shall be covered. Covers shall be secured in place and shall be strong enough to prevent livestock or wildlife from falling through and into a hole.

19. The holder shall evenly spread the excess soil excavated from pole holes within the right-of-way and in the immediate vicinity of the pole structure.

20. Any roads used exclusively for construction purposes shall be adequately closed to all vehicular travel, and rehabilitated after completion of construction. The manner of closure shall be determined in conjunction with a representative of the AO.

21. No surface disturbing activities shall take place on the subject right-of-way until the associated APD is approved. The holder will adhere to special stipulations in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.

22. No surface disturbance or construction activities will be allowed within __ feet of which shall be clearly marked as specified by the AO. Any deviation from this requirement shall have the prior approval of the AO.

23. The holder shall provide for the safety of the public entering the right-of-way. This includes, but is not limited to, barricades for open trenches, flagmen/women with communication systems for single-lane roads without intervisible turnouts, and attended gates for blasting operations.

24. A buffer strip of vegetation __ feet wide shall be left between areas of surface disturbance and riparian vegetation as determined necessary by the AO.

25. The holder shall mark the exterior boundaries of the right-of-way with stake and/or lath at 100- to 200-foot intervals. The intervals may be varied at the time of staking at the discretion of the AO. The tops of the stakes and/or laths will be painted and the laths flagged in a distinctive color as determined by the holder. The survey station numbers will be marked on the boundary stakes and/or laths at the entrance to and the exit from public land. The holder shall maintain all boundary stakes and/or laths in place until final cleanup and restoration is completed and approved by the AO. The stakes and/or laths will then be removed at the direction of the AO.

26. The holder shall survey and clearly mark the centerline and/or exterior limits of the right-of-way, as determined by the AO (set reference markers for all angle stations [P.I.] on both sides of the right-of-way prior to construction activities).

27. The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the AO to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

28. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 6 inches deep, the soil shall be deemed too wet.

29. When construction activity in connection with the right-of-way breaks or destroys a natural barrier used for livestock control, gaps thus opened shall be fenced to prevent drift of livestock. The subject natural barrier shall be identified and fenced by the holder as per instructions of the AO.

30. Holder is responsible to contact the grazing lessee(s) named below, prior to crossing any fence on public land or any fence between public and private land, and to offer the lessee(s) an opportunity to be present when the fence cut(s) is made so the lessee(s) can be satisfied that the fence is adequately braced and secured.

Lessee ______________ Phone _______________Address ____

31. Maintain a minimum of ten (10) feet of undisturbed surface between fence lines and roads that are constructed parallel to fences.

32. Each fence crossed by this right-of-way shall be braced and secured to prevent slacking of the wire, before cutting the wire. The opening thus created shall be temporarily closed as necessary during construction to prevent passage of livestock. Upon completion of construction,

A. Install a cattleguard with an adjacent sixteen (16)-foot gate. The cattleguard shall be constructed to BLM specifications.

B. Install a metal gate constructed to BLM specifications and capable of being locked, but not a cattleguard.

C. Reconstruct the fence to BLM specifications.

33. Those segments of road where grade is in excess of ten percent for more than 300 feet shall be designed by a professional engineer.

34. Cathodic right-of-way clearing shall include:

A. Be limited to knocking off the tops of brush in vegetative types other than piñon/juniper type vegetation. Grading and removal of the grass cover or low growth vegetation is prohibited, except immediately along the ditch line, and in rough or broken ground.

B. Provide that trees, in piñon-juniper type vegetation, cleared from the right-of-way shall be left for wood gathering activities. The trees shall be moved aside prior to any soil disturbing activities. Do not mix soil with the trees during right-of-way clearing.

C. Be limited to a width of ___ feet.

35. The cathodic cable shall be spanned above ground from Sta. _ to Sta. _.

36. The cathodic cable shall be constructed in the access road or within fifteen (15) feet of the access road.

37. The cathodic cable shall be constructed in the access road or within fifteen (15) feet of the access road from Sta. _ to Sta. _.

38. No blading of the right-of-way is permitted.

39. Suitable topsoil material removed in conjunction with clearing and stripping shall be conserved in stockpiles (within the right-of-way, at the following staked locations:_____). Topsoil shall be stripped to an average depth of ___ inches (road stips only). Spread the topsoil on ROW during reclamation if the road will not be used longer than (2) years; if it will be used for a longer time, spread the topsoil on slopes of the road and road ditch.

40. Sidehill cuts of more than three (3) feet are not permitted. Areas requiring cuts greater than this shall be terraced so none are greater than three (3) feet.

41. Holder is encouraged to use a "rock trencher" or "rock saw" type of machine (or any other technology that limits environmental disturbance) when any rock is encountered to aid in minimizing environmental disturbance. Use of these types of equipment may be required by BLM on specific locations. Use explosives in any amount or a hydraulic or cable ripper for intermittent distances of more than fifty feet shall be approved on a case-by-case basis by the AO prior to use.

42. This road shall have a minimum driving surface of 14 feet, a maximum bladed width of _ feet excluding turnout ditches and turnouts, and a maximum grade of 10 percent (pitches over 10 percent that are less than 300 feet in length may be allowed).

43. Crowning and ditching on both sides of the road are required. The road cross section will conform to the cross section diagrams available from BLM. The crown shall have a grade of approximately two percent (i.e., two-inch crown on a 14-foot-wide road).

44. Drainage control shall be ensured over the entire road through the use of borrow ditches, drainage dips, outsloping, insloping, natural rolling topography, and/or turnout (lead-off) ditches. Every drainage dip shall drain water into an adjacent turnout ditch.

45. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter is 18 inches. A _ -inch–diameter culvert shall be placed at locations discussed during the onsite inspection.

46. The pipeline shall be laid above ground from Sta. ___ to Sta. ___, and no blading shall be allowed between these stations.

47. Place the pipeline in the existing road or within ten (10) feet of the edge of the traveled surface of the existing road (from Sta. __ to Sta. __).

48. Bury the pipeline in the existing road or within twenty (20) feet of the edge of the traveled surface of the existing road.

49. The holder shall construct low-water crossings in a manner that will prevent any blockage or restriction of the existing channel. Material removed shall be stockpiled for use in rehabilitation of the crossing.

50. Unless otherwise approved by the AO, vehicle turnouts will be required. Turnouts will be located at 2000-foot intervals, or the turnouts will be inter-visible, whichever is less. Turnouts will conform to diagrams that can be obtained from the AO.

51. All cattleguard grid identification marks welded into them indicating ownership and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASTHO) load rating H-20, although AASTHO U-80 rated grids shall be required where heavy loads, (exceeding H-20 loading) are anticipated. (See BLM standard drawings for cattleguards). Cattleguard grid width shall not be less than eight feet and length of not less than 14 feet. A wire gate with a minimum width of 16 feet will be provided on one side of the cattleguard.

52. Construct this "loop line" within twenty (20) feet of the existing pipeline.

53. If a surface pipeline is constructed adjacent to a road, it shall be no closer than twenty (20) feet from traveled surface of the road

54. All surface pipeline(s) shall be buried at least three (3) feet where it crosses any road or areas associated with a road, i.e., bar-ditches, water turn-outs. The pipeline shall be marked with suitable signs on either side of a road crossing(s).

55. All weather access is desired and surface material (__) is economically available, therefore the road shall be surfaced. The surfacing material will be compacted to a minimum thickness of __ inches. Prior to using any mineral material from an existing or proposed Federal source, authorization must be obtained from the AO.

56. Surfacing may be applied at the Holder's discretion, but is not required at this time. However, if it becomes evident there is resource damage or it becomes evident the road is receiving excess damage, surfacing will be required.

57. Plastic pipe shall not be used in the construction of a surface pipeline.

58. Compaction of the surfacing material will be done with a sheep's foot compactor. Upgrading and surfacing of the collector road will be done during the spring and summer of ______. Work on the remaining local and resource roads to bring them up to BLM standards will be accomplished by the summer of ______. All maintenance and upgrading of existing roads will be done within the existing disturbed area.

59. Holder is responsible for notifying the party(s) listed below for sharing in road maintenance.

Right-of-way	Holder	Address	Telephone

60. The Holder shall:

A. Recontour disturbed areas, or designated sections of the right-of-way, by grading to restore the site to approximately the original contour of the ground as determined by the AO.

B. Recontour the disturbed area and obliterate all earthwork by removing embankments, backfilling excavations, and grading to re-establish the approximate original contours of the land in the right-of-way.

C. Uniformly spread topsoil over all unoccupied disturbed areas (outside the ditch line, fence line, work area). Spreading shall not be done when the ground or topsoil is frozen or wet.

61. Construct earthen berms that are a minimum of four (4) feet high with a ditch that has a one (1)-foot vertical face away from the right-of-way, i.e., towards the direction of potential traffic, cut at the base of the berm. Construct this type berm at each end of the right-of-way where it is separate from the road.

62. The Holder shall furnish and apply water, chemicals, or use other means satisfactory to the AO for dust

63. If snow removal from the road is undertaken, equipment used for snow removal operations shall be equipped with shoes to keep the blade __ inches off the road surface. Holder shall take special precautions where the surface of the ground is uneven and at drainage crossings to ensure that equipment blades do not destroy vegetation.

64. The holder shall construct waterbars on all disturbed areas to the spacing and cross sections specified by the AO. Waterbars are to be constructed to: (1) simulate the imaginary contour lines of the slope (ideally with a grade of one or two percent); (2) drain away from the disturbed area; and (3) begin and end in vegetation or rock whenever possible.

Percent Slope	Spacing Intervals
Less than 1%	400 feet
1 - 5%	300 feet
5 -15%	200 feet
12-25%	100 feet

65. The Holder shall mulch disturbed areas designated by the AO. The type of mulch shall meet the following requirements:

A. Straw or hay used for mulching shall be from oats, wheat, rye, or other approved grain crops, or approved herbaceous mowings, respectively, and free from noxious or other objectionable material as determined by the AO. Straw or hay mulch shall be suitable for placing with mulch blower equipment.

B. Wood cellulose fiber shall be natural or cooked wood cellulose fiber, shall disperse readily in water, and shall be nontoxic. The homogeneous slurry or mixture shall be capable of application with power spray equipment. A colored dye that is noninjurious to plant growth may be used when specified. Wood cellulose fiber shall be packaged in new, labeled containers.

C. Hand seeding with hydro-mulch, excelsior netting and/or mulch with netting __ required on __ slopes. Mulch should be grass or straw spread at 2,000 to 3,000 pounds per acre (or one to two inches deep).

66. All above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of:

A. Federal Juniper Green (595a-34127)
B. Munsell Soil Color Slate Gray (5Y 6/1)
C. Munsell Soil Color Carlsbad Canyon Brown (2.5Y 6/2).
D. Munsell Soil Color Desert Brown (10YR 6/3)
E. The leg-off will not be painted the above color, but instead shall be left unpainted such that the rusty finish on the pipe would blend in with the surroundings.

67. Seed all the disturbed areas (except the driving surface and road shoulders [entire area if road is to be reclaimed] road only) using the following designated seed mixture and to the specifications given. Disturbed areas shall be reseeded within one year of final construction.

68. This grant is for an existing road(s) under the terms of the New Mexico Policy, Standards, and Procedures for Existing Roads issued effective January 1, 1990. This R/W grant shall be deemed to describe the existing road(s) as it exists on the ground as of April 8, 1991, notwithstanding the descriptions contained herein.

69. Upon completion of construction, the Holder shall post as directed by the AO, the Bureau serial number assigned to this right-of-way grant at the following location(s) ___.

70. A. The Holder shall reconstruct rock rims to near as possible to the original.
B. There will be bitterbrush plant seedings planted on slopes as identified by the AO. These seedings will be placed with BLM's assistance and direction. It is also advisable to obtain a nursery specialist to assist and advise with this project. These seedings will be in addition to the normal grass and forb mix that will be seeded into the entire right-of-way.

I. LOCATION AND ACCESS ROAD STANDARDS

1. Well area and lease premises will be maintained in a workmanlike manner with due regard to safety, conservation and appearance. All liquid waste, completion fluids and drilling products associated with oil and gas operations will be contained and then buried in place, or removed and deposited in an approved disposal site.

2. Surface disturbance and vehicular traffic will be limited to the approved location and approved access road.

3. Mud and blow pits will be constructed so as not to leak, break or allow discharge of liquids or produced solids. At least half of the capacity of the reserve pit must be in cut. The top of the outside wall of reserve pit should be smoothed-off with a minimum of one blade width. The pit should have adequate capacity to maintain 2 feet of free board. Pits are not to be located in natural drainages. Pit walls are to be "walked down" by a crawler type tractor following construction and prior to usage. Any plastic material used to line pits must be removed to below-ground level before pits are covered. The final grade of reserve pit (after reclamation) shall allow for drainage away from pit area.

4. All unguarded pits (reserve/production/blow) containing liquids will be fenced with woven wire. Drilling pits will be fenced on three sides and once the rig leaves location, the fourth side will be fenced. All fencing must be a legal fence in accordance with New Mexico State Law. Liquids in pits will be allowed to evaporate, or be properly disposed of, before pits are filled and recontoured. (This office will be notified 24 hours prior to fluid hauling.) Under no circumstances will pits be cut and drained. Aeration of pit fluids must be confined within pit area. Upon completion of the well the reserve pit will be covered with screening or netting and remained covered until the pit is reclaimed. All production pits 16 feet in diameter or larger will be covered with screening or netting.

5. No gravel or other related minerals from new or existing pits on Federal land will be used in construction of roads, well sites, etc., without prior approval from the Surface Managing Agency.

6. Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks, or the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction.

7. All roads on public land must be maintained in good passable condition.

8. Use of pesticides and herbicides shall comply with applicable federal/state laws. Pesticides and herbicides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, holder shall obtain from the AO written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary. Emergency use of pesticides shall be approved in writing by the AO prior to use.

9. Holder shall be responsible for weed control and selective control of invasive weeds on disturbed and reclaimed areas within the limits of the well pad, associated road and pipeline ROW. Holder is responsible for consultation with the AO and/or local authorities for acceptable weed control methods within limits imposed in the conditions of approval.

II. CULTURAL RESOURCES (ARCHAEOLOGY)

1. **Discovery of Cultural Resources in the Absence of Monitoring**: If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

2. **Discovery of Cultural Resources During Monitoring:** If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved “discovery plan” in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery and consult with the State Historic Preservation Officer in accordance with 36 CFR Section 800.11. Minor recordation, stabilization, or data recovery may be performed by BLM or a permitted cultural resources consultant. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

3. **Damage to Sites**: If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a BLM approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

III. RESEEDING AND ABANDONMENT

[INSERT SEED MIXTURE HERE]

Species shall be planted in pounds of pure live seed per acre:
Present Pure Live Seed (PLS) = Purity X Germination/100

Two lots of seed can be compared on the basis of PLS as follows:

Source No. One (poor quality)		Source No. two (better quality)	
Purity	50 percent	Purity	80 percent
Germination	40 percent	Germination	63 percent
Percent PLS	20 percent	Percent PLS	50 percent
5 lb. bulk seed required to make 1 lb. PLS.		***2 lb. bulk seed required to make 1 lb. PLS.***	

The seed mixture used must be ***certified***. There shall be NO primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seed is being sown.

Seeding shall be accomplished between July 1 and September 15 (later date may be extended on a case-by-case basis with AO approval).

Compacted areas shall be ripped to a depth of twelve inches and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. The seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag, packer, or roller to ensure uniform coverage of the seed, and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

Where slopes are too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder shall be used. Seed shall then be covered to the depth described above by whatever means is practical, i.e. hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

Seeding shall be repeated if a satisfactory stand is not obtained as determined by the AO upon evaluation after the second growing season.

If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed. All ripped surfaces are to be protected from vehicular travel by construction of a dead end ditch and earthen barricade at the entrance to these ripped areas. (Reseeding of affected areas may be required.)

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MARCH 3, 1849

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington Field Office
1235 La Plata Highway, Suite A
Farmington, New Mexico 87401

IN REPLY REFER TO:
3162.3-1(07100)

x Name of Company
x Name of Well
x Lease Number
x Legal Location
x Name of County and State

Above Data Required on Well Sign

GENERAL REQUIREMENTS
FOR
OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

In addition to those requirements set forth in the laws, regulations and Onshore Orders, these requirements apply generally to all oil and gas operations on Federal and Indian leases. They apply specifically to the above described well. Special requirements that apply and are effective for this well, if any, are check-marked in Section VII of these General Requirements. The failure of the operator to comply with these requirements and the filing of required reports will result in strict enforcement of 43 CFR 3163.1 or 3163.2.

I. GENERAL

A. Full compliance with all applicable laws, regulations, and Onshore Orders, with the approved Permit to Drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on 8½ x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).

F. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a notice of intent (on a Sundry Notice, Form 3160-5) within three business days (original and three copies of Federal leases and an original and four copies on Indian leases). **Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at XXX-XXX-XXXX. Emergency program changes after hours should be directed to __________ at XXX-XXX-XXXX or __________ at XXX-XXX-XXXX.**

G. The Field Office Manager (Inspection and Enforcement Section, phone number (505-599-8907) is to be notified at least 24 hours in advance of any cementing or plugging operations so that a BLM representative may witness the operations.

H. Unless drilling operations are commenced within one year, approval of the Application for Permit to Drill well expire. A written request for a six months extension may be granted if submitted prior to expiration.

I. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the toolpusher shall maintain rig surveillance at all time, unless the well is secured with blowout preventers or cement plugs.

J. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.

II. REPORTING REQUIREMENTS

A. For reporting purposes, all leases, communitization agreements or unit agreements are to be referenced by the numbers and prefixes affixed to the respective contract documents by the issuing agency at the time of issue.

B. The following reports shall be filed with the BLM-Authorized Officer within 30 days after the work is completed.

1. Original and three copies on Federal and Original and four copies on Indian leases of Sundry Notice (Form 3160-5), giving complete information concerning.

    a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of any and all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.

    b. Intervals tested, perforated (include; size, number and location of perforations), acidized, or fractured; and results obtained. Show date work was done (a Sundry Notice is not required if a Completion Report is submitted within 30 days of the operation).

c. Subsequent Report of Abandonment, showing the manner in which the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.

2. Well Completion Report (Form 3160-4) will be submitted within 30 days after well has been completed

a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.

3. A cement evaluation log if cement is not circulated to surface.

III. DRILLER'S LOG

A. The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results. 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results and 8) Estimated amounts of oil and gas recovered and/or produced during drillstem test.

IV. GAS FLARING

A. Gas produced from this well may not be vented or flared beyond an initial, authorized test period of __*__ Days or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

*30 days, unless a longer test period specifically is approved by the authorized officer. The 30-day period beings when the casing is first perforated for cased holes, and when Total Depth (TD) is reached for open hold completion.

V. SAFETY

A. All rig heating stoves are to be of the explosion-proof type.

B. Rig safety lines are to be installed.

C. Hard hats must be utilized.

VI CHANGE OF PLANS OR ABANDONMENT

A. Any changes of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section 1.F..

B. If the well is dry it is to be plugged in accord with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section 1.F.. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section 11.B.1c..

C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drillsite without prior approval from the BLM-Authorized Officer.

VII. SPECIAL STIPLATIONS

The following special requirements apply and are effective when checked:

A. A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the Bureau of Land Management, Farmington Field Office, Branch of Reservoir Management, 1235 La Plata Highway, Suite A, Farmington, New Mexico 87401. The effective date of the agreement must be Prior to any sales.

B. The BLM-Authorized Officer requires testing all components of well control systems at the pressure requirements set forth in Onshore Oil and Gas Order No. 2, Section III. A. 1., plus a 30% safety factor, and does not elect to utilize the discretionary authority for requiring the testing of selected components at the A. P. L. working pressures.

C. Note Attachments

VIII. PHONE NUMBERS

A. For cementing and plugging operations the phone number is 505-599-8907 and should be called 24 hours in advance in order that a BLM representative may witness the operations.

B. Emergency program changes after hours contact:

_________ at (XXX) XXX-XXXX

or

_________ at (XXX) XXX-XXXX

ADDITIONAL SITE-SPECIFIC MITIGATION MEASURES

The following measures apply to primarily site-specific areas and may be attached as Conditions of Approval to APDs or as special stipulations to ROWs. Maps indicating locations of sensitive areas are maintained at the FFO.

1. No surface disturbance shall be permitted in bald eagle essential habitat (core areas).
2. No construction activities shall be conducted between November 1 to March 31 in bald eagle buffer zones, unless approved on a case-by-case basis.
3. Areas of potential suitable habitat for bald eagle will be inventoried prior to approval of any action. This area shall include a one-half mile strip around Navajo Lake. If the presence of a bald eagle is confirmed, restrictions on development will be imposed and actions may be authorized on a case-by-case basis. USFWS and affected agency shall be involved in Section 7 consultation, if necessary.
4. All proposed actions within unsurveyed suitable habitat for any proposed threatened/endangered (State or Federal) species will require surveys according to the responsible agencies protocol. Restrictions will be placed on surface disturbing activities in suitable habitat until these inventories are complete. The absence of any threatened/endangered species must be confirmed prior to approval of any surface-disturbing action that may affect the habitat. If presence of a threatened/endangered species is found, restrictions on new development will be imposed and actions may be authorized on a case-by-case basis.
5. Designated Antelope Habitat – In order to protect important antelope fawning habitat, exploration, drilling and other development activity will be allowed only during the period from May 1 through July 15. Limitation does not apply to maintenance and operation of producing wells. Exception to this limitation may be, specifically authorized in writing by the Authorized Officer of the Federal surface management agency.
6. Elk Calving Habitat – In order to protect important seasonal wildlife habitat (elk calving range), exploration, drilling and other development activity will be allowed only during the period from July 15 through November 30. This limitation does not apply to maintenance and operation of producing wells. Exception to this limitation may be specifically authorized in writing by the Authorized Officer of the Federal surface management agency.
7. No development activity or surface occupancy shall be permitted in wetland areas (as defined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands). Exceptions may be analyzed in a site-specific environmental assessment. Any wetland acreage destroyed shall be mitigated by the acreage ratio as prescribed by the USFWS. Seasonal closures for waterfowl nesting and bald eagle wintering may apply.

8. No surface occupancy shall be allowed within developed recreation areas without proper NEPA compliance.

9. Prior to approval of a well location within 500 horizontal feet of the high water line of Navajo Reservoir (elevation 6,085 feet), it must examined by BOR and the potential impacts to water quality determined.

10. Minerals under areas of critical concern along the San Juan River, and under or close to Navajo Lake, shall be developed using no surface occupancy and directional drilling. Exceptions may be granted on a case-by-case basis in consultation with necessary agencies. Any exception to surface occupancy shall have strict additional mitigating measures attached. Seasonal closure(s) for waterfowl and bald eagle wintering may also apply.

11. Restrict drilling within 1,000 horizontal feet of Navajo Dam and appurtenant structures. This includes the foundation of the dam, which extends 1,320 feet upstream and 1,260 feet downstream from the dam axis (T. 30 N., R. 7 W., Sec. 18: S2, Sec. 19: N2, N2SW4, N2N2SE4).

12. Development will be restricted in areas that have special topographical (steep or broken and/or on benches) and soil concerns. Development will be considered on a case-by-case basis and will contain strict mitigation stipulations.

13. Those areas within the unit that are also contained within the Carracas Mesa SMA shall have the following requirements:

    a. Restrict vehicles to designated routes and seasonal closures.

    b. Major right-of-ways shall be located outside of the SMA boundary. This does not include individual well ties.

    c. VRM Class II objectives shall apply to all development. The management objectives of this class are to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

    d. Visual, wildlife and recreation clearances will be required for all new development activity.

    e. No surface disturbance on slopes greater than 20 percent.

14. Those areas within the unit that are within the Reese Canyon Research Natural Area shall have the following requirements:

   a. Restrict vehicles to designated routes and seasonal closures.

   b. Major right-of-ways shall be located outside the RNA boundary. This does not include individual well ties.

   c. New wells in the RNA should be twinned off existing well pads except where other constraints (e.g. T/E) exist.

   d. No surface disturbance on benches or slopes greater than 20 percent.

   e. No surface occupancy will be allowed in occupied and potential habitat for Federal or State listed threatened and endangered species. These areas should be excluded from any surface disturbing activities unless those activities are completely confined to areas of existing disturbance and the proposed activity is fully evaluated or its potential impacts to recovery of the endangered plant species.

15. Those areas within the unit that are also within the Negro Canyon SMA shall have the following requirements:

   a. Restrict vehicles to designated routes and seasonal closures.

   b. Major right-of-ways shall be located outside of the SMA boundary. This does not include individual well ties.

   c. VRM Class II objectives shall apply to all development. The management objectives of this class are to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

   d. Visual, wildlife, and recreation clearance will be required for all new development activity.

   e. No surface disturbance on slopes greater than 20 percent.

16. Those areas within the Simon Canyon Area of Critical Environmental Concern shall have the following requirements:

   a. Restrict vehicles to designated routes.

   b. Major rights-of-way shall be located outside the ACEC boundary. This does not include individual well ties.

c. VRM Class II objectives shall apply to all development. The management objectives of this class are to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

d. Visual, wildlife and recreation clearances will be required for all new development activity.

e. No development shall be allowed in the canyon bottom.

f. No development shall be allowed on the canyon rim that is visible from the canyon bottom.

17. Riparian Habitat - When riparian vegetation cannot be avoided during permitted project, the permittee is responsible to reestablish any riparian vegetation lost during construction. Cottonwoods will be replaced on a 10 to 1 ratio and willows will be replaced on a 3 to 1 ratio. Sedimentation barrier fences will be constructed to BLM specifications in designated riparian area active channels that may be destabilized due to construction activities, or as off site mitigation to protect the integrity of designated riparian areas.

18. *Sclerocactus cloveriae* ssp. *brakii* (Brack's Cactus), *Aliciella formosa* (Aztec Gilia):

When individual plants or suitable habitat for these plants as determined by BLM are found during a biological survey for a proposed well pad, pipeline, or other ground disturbing project, the company proposing the project will be given the following options:

1. Relocate the project to miss the plants or habitat and drill conventionally.

2. Relocate the pad and directionally drill to the target area.

3. Transplant Brack's cactus, stockpile and respread soil when appropriate as determined by BLM.

Every effort to relocate the proposed pad must be explored before BLM will approve Option 3.

19. Golden Eagle (*Aquila chrysaetos)*, Ferruginous hawk (*Buteo regalis)*, and Prairie falcon (*Falco mexicanus*) nest sites:

No construction, drilling or completion activities shall be conducted between March 1 to June 30 in a radius of 1/3 mi. around active and historic nest sites.

20. All producers will receive a list of sections by legal location that contain established raptor nests. If a producer wishes to install or operate a new compressor between March 1 and June 30 in a designated raptor section, the compressor must not emit more than 48.6 dbA at 300 feet from the compressor **OR** the producer may submit a sundry prior to installing a compressor so the FFO T&E biologist can evaluate the situation and recommend a mitigation solution. The coordinated mitigation solution will not be more stringent than 48.6 dbA at 300 feet.

21. Mitigation for peregrine falcon nest sites will be determined on a site-specific basis using the principle of designating sensitive zones in which disturbance is seasonally restricted as delineated in Johnson 1994. (Reference: Johnson, T.H. 1994. *Peregrine Falcon Habitat Management in National Forests of New Mexico*. U.S. Forest Service, report. 22p.)

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Appendix H
Potential R&PP Locations Identified

Potential R&PP Locations Identified

T. 24 N., R. 9 W.
Sec. 25

T. 25 N., R. 11 W.
Sec. 18

T. 27 N., R. 11 W.
Sec. 35

T. 28 N., R. 11 W.
Sec. 10 & 15

T. 29 N., R. 10 W.
Sec. 17 & 18

T. 29 N., R. 11 W.
Sec. 3, 10, 29 & 31

T. 29 N., R. 12 W.
Sec. 2, 10, 11, 17, 18, 33 & 34

T. 30 N., R. 9 W.
Sec. 27 & 28

T. 30 N., R. 10 W.
Sec. 17 & 18

T. 30 N., R. 11 W.
Sec. 2, 3, 5, 6, 7, 10, 11, 14, 15, 17, 20, 21, 23, 26, 27 & 28

T. 30 N., R. 12 W.
Sec. 1, 2, 11, 12 & 20

T. 30 N., R. 13 W.
Sec. 26, 27 & 34

T. 30 N., R. 14 W.
Sec. 26 & 34

T. 30 N., R. 14 W.
Sec. 31

T. 31 N., R. 8 W.
Sec. 3, 4, 9 & 10

T. 31 N., R. 11 W.
Sec. 31, 32, 33 & 34

T. 31 N., R. 12 W.
Sec. 4, 5, 9,10 & 34

T. 32 N., R. 6 W.
Sec. 7 & 8

T. 32 N., R. 7 W.
Sec. 13

T. 32 N., R. 8 W.
Sec. 33 & 34

T. 32 N., R. 10 W.
Sec. 21

T. 32 N., R. 13 W.
Sec. 10, 15 & 22

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Appendix I
OHV Management

Implementing Area Designations and Guidance for Site-Specific Planning

Introduction

Background

The off-highway portion of the Draft EIS for the FFO is a programmatic planning document and is intended to provide the environmental analysis and disclosure needed to amend OHV area designations in the proposed resource management plan.

The Draft EIS addresses the impacts of motorized wheeled OHV travel on areas currently available to cross-country travel. The proposed decision would amend the resource management plan OHV designations on approximately 1.4 million acres of public land within the FFO. This designation limits/restricts motorized wheeled cross-country travel yearlong under BLM regulations (CFR 8342). The proposed action does not change the current limited/restricted yearlong or closed designations, or designated OHV intensive use areas within the existing Special Management Areas. Site specific planning would address OHV use in each OHV Management Unit.

The programmatic Draft EIS is not intended to change existing site-specific direction to close areas or trails to the traffic types causing considerable adverse effects (43 CFR 8341.2). Identifying affected areas or trails may occur through normal administration and monitoring or may be the result of public input.

Planning Process

EIS/Plan Amendment: Planning for BLM lands involves two levels of decision. The first level, often referred to as programmatic planning, is the development or amendment of the resource management plan, which provides management direction for the various resource programs, uses, and protection measures. The resource management plan and associated amendments are intended to set out management prescriptions with goals, objectives, standards, guidelines, and terms and conditions for future decision-making through site-specific planning. This includes the designation of areas as closed, open, or restricted/limited to motorized wheeled cross-country travel.

Site-Specific Planning: The second level of planning involves the analysis and implementation of management practices designed to achieve goals and objectives of the resource management plan. This is referred to, as project, activity, or site-specific planning that requires detailed information, including the location, condition, and current use of individual roads, trails, routes, and areas. This allows the identification of when and where individual roads, trails, routes and areas will be open or closed to various types of use. This step is accomplished through the site-specific planning process at the local level, and is dependent on the availability of funds and resources. A prioritized list of areas for site-specific planning would be completed within six months after the signing of the Record of Decision for the Final EIS.

This would be consistent with the land use planning manual and handbook (Manual 1600 and Handbook H-1600-1) and any future OHV planning policy.

Prioritization for Site Specific Planning

Introduction

To ensure that site-specific planning is initiated in areas of the most need, areas would be identified by three categories to provide appropriate emphasis for their completion. Prioritization for site-specific planning would be done by OHV management unit or by SMA and would be rated as high, moderate, or low based on several factors.

Prioritization of Areas

The FFO would complete a prioritized list of areas for site-specific planning within six months of the signing of the ROD in close coordination with the public.

Factors: When determining the priorities for site-specific planning, the FFO will consider the effects of the Final EIS; Executive Orders 11644 and 11989; the National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands; coordination with the public; other partners, agencies, and tribal governments; and the factors listed below:

- Opportunity to provide a variety of OHV recreational experiences, while minimizing resource damage and conflicts.
- Risk of, or current damage to, soil watersheds, vegetation, or other natural, cultural or historic resources on public land.
- Potential to spread noxious weeds.
- Avoidance of riparian/wetland areas.
- Need to minimize harassment of wildlife or significant degradation of wildlife habitats.
- Concern for safety of all users.
- Resolution of conflicts between various user groups.
- Current or potential impacts to federally listed threatened or endangered, and sensitive species.
- Amount of public land within the disposal zone.

Categories: OHV management units and applicable SMAs will be included in one of the following categories:

HIGH PRIORITY AREAS – Areas that currently have a high level of OHV use, which has resulted in resource damage and/or user conflicts. There is the need to address all or most of the factors listed above. Site-specific planning would be initiated within two years of the resolution of any protests to the Final EIS or administrative appeals to the ROD.

MODERATE PRIORITY AREA – These areas may address some of the factors listed above, as well as identifying areas that provide OHV opportunities, and at the same time minimize user conflicts and resource damage. Site-specific planning would be started within five years (same guidelines as above).

LOW PRIORITY AREAS – Areas where the majority of the public land is in the disposal zone and/or there is low OHV use due to remoteness and distance from the major population centers. Any resource problems can be solved with emergency closures until they are resolved. There are no specific requirements for initiation of site-specific planning.

Road/Trail/Route/Area Inventory

Through site-specific planning, roads, routes, trails, and areas would be inventoried, mapped and designated as open, limited by season or type of vehicle, or closed.

Site-specific planning would identify appropriate locations and types of allowable use based on resource management plan desired conditions and management conditions. In addition, site-specific planning may identify areas for trail construction and/or improvement, or specific areas where intensive OHV use may be appropriate. Integration of other resource objectives and other types of recreational use would be incorporated at this time.

User Needs

Site-specific planning would identify issues needing resolution at the site-specific level. The following procedure would be followed:

1. Define the scope of the analysis. The boundaries of the area to be analyzed would be the prioritized OHV Management Unit and/or the Special Management Area.

2. Identify and describe vehicle travel needs for individual roads, routes, trails and areas. Consider the reasons for needing access to the area, what travel mode is needed or desired, and why people choose to participate in a specific activity in a particular place. Is access needed for:

   - Meeting recreation opportunities and demand?
   - Commodity production?
   - Water production?
   - Special use permits?
   - Rights-of-way, legal access, easements, cost-share or prescriptive rights?
   - Private in holdings?
   - Hazardous waste remediation or watershed restoration?
   - Fire protection or law enforcement?
   - Barrier-free recreation opportunities or special access accommodations as needed by individuals?
   - Other access needs?

3. Identify and describe needs and/or reasons to limit travel in the OHV Management Unit. Consider the potential effects of different uses on:

   - Wildlife habitat
   - Grazing allotments
   - Soils
   - Water quality
   - Riparian areas
   - Threatened and endangered species habitat
   - Cultural resources
   - Native vegetation
   - Conflicting uses
   - Public safety
   - Special management areas
   - Lessees and permittees
   - Other access restriction needs

Development of Alternatives

Alternatives should reflect a range of distribution strategies for agency and public land users. The distribution strategies must balance requirements for restrictions with the needs for vehicle travel. They must also address the objectives for the area. Planning prescriptions should be developed for roads, routes, trails, and areas within the analysis area.

Decision

Completion of site-specific planning for an area will establish a permanent management plan for that particular area through the designation of roads, routes, trails, and areas open, limited, or closed for a particular use.

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Appendix J
Air Quality Data

Table J-1. Annual Gas Production Data and Emissions for the BLM Farmington/Rio Puerco RMPs—Alternative A

Project Year	Wells in Production[1]	Annual Production (Bscf)[2]	Tons per Year			
			VOC	CO	NOx	PM_{10}
1	221	23.4	51	1,195	1,225	1
2	442	46.8	102	2,390	2,451	1
3	663	70.1	153	3,584	3,676	2
4	884	93.5	204	4,779	4,901	2
5	1,105	116.9	254	5,974	6,127	3
6	1,326	140.3	305	7,169	7,352	3
7	1,547	163.7	356	8,363	8,578	4
8	1,768	187.0	407	9,558	9,803	4
9	1,989	210.4	458	10,753	11,028	5
10	2,210	233.8	509	11,948	12,254	5
11	2,431	257.2	560	13,143	13,479	6
12	2,652	280.6	611	14,337	14,704	6
13	2,873	304.0	662	15,532	15,930	7
14	3,094	327.3	712	16,727	17,155	7
15	3,315	350.7	763	17,922	18,381	8
16	3,536	374.1	814	19,116	19,606	8
17	3,757	397.5	865	20,311	20,831	9
18	3,978	420.9	916	21,506	22,057	9
19	4,199	444.2	967	22,701	23,282	10
20	4,420	467.6	1,018	23,896	24,507	10
Totals	46,410	4,910				

Notes: (1) Assumes an annual growth rate of 1/20th of the total wells assumed for the alternative, or 4,420 wells/20 years = 221 wells per year and all wells stay in production once developed.

(2) Annual production = wells in production per year * annual well production. Annual well production = total production for the alternative/total well-years, or 4,910 billion standard cubic feet (Bscf)/46,410 well-years = 0.106 Bscf/well-year.

Table J-2. Emission Factors for Sources Associated with the BLM Farmington/Rio Puerco RMPs

Equipment Type	Emission Factor (Grams/Hp-Hr)				Source
	VOC	CO	NOx	PM_{10}	
Wellhead Compressor	0.30	13.05	13.15	0.0001	(1)
Separator Unit	5.50	40.00	94.00	7.60	(2)
Central Compressor	0.47	1.29	1.64	0.0001	(3)

Notes: (1) VOC data for a Caterpillar G3304 unit (Kaufman 2001). CO and NOx data from source test survey of units from 65-145 Hp (AQB 2001a). PM_{10} data from AP-42 (EPA 2000), Section 3.2, Table 3.2.2.

(2) AP-42 Section 1.4, residential furnaces. Units in pounds per million cubic feet of gas.

(3) VOC data for a Caterpillar G3312 unit (Caterpillar Inc., 2001). CO and NOx data from source test survey of units from 2,500-4,500 Hp (AQB 2001a). PM_{10} data from AP-42 (EPA 2000), Section 3.2, Table 3.2.2.

Table J-3. Operational Data for Emission Sources Associated with the BLM Farmington/Rio Puerco RMPs—Alternative A

Scenario/Equipment Type	Horse-power	Load Factor	Hourly Hp-Hr	Annual Hp-Hr	Hourly Fuel Use (scf)	Annual Fuel Use (Mscf)
Average Producing Well						
Wellhead Compressor - Cat G3304[1]	95	0.43	40	353,685	341	2.99
Separator Unit[2]	250,000	0.25	62,500	N/A	69	0.60
Annual Central Compression Needs						
Central Compressor - Cat 3612[3]	6,040	0.90	5,436	47,619,360	40,605	355.70

Notes: (1) Wellhead compressors expected at 50% of the proposed wells and would operate at 100% load and 85% of the year. Therefore, the annualized load factor per well is 42.5%. Gas heating values = 905 BTUs.

(2) Separator units expected at 50% of proposed wells and would operate at 100% load and 50% of the year. Therefore, the annualized load factor per well is 25%. Horsepower = unit firing rate of 250,000 BTUs/Hr and Hourly Hp-Hr = hourly firing rate of 62,500 BTUs/Hr.

(3) Central compression would reach 120,800 Hp by the end of the 20-year project period. Implementation assumed to be at a rate of 120,800 Hp/20 years = 6,040 Hp/year. The annualized load factor is 90%.

Table J-4. First Year Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative A

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	25.8	1,124.4	1,133.0	0.0
Separator Units	0.4	2.7	6.3	0.5
Central Compression	24.7	67.7	86.1	0.0
Alternative A - Tons per Year	**50.9**	**1,194.8**	**1,225.4**	**0.5**
P&A Wells - Tons per Year	**(8.3)**	**(340.9)**	**(344.9)**	**(0.2)**
Alternative A Net Change (Alt A - P&A)	**42.6**	**853.8**	**880.5**	**0.4**

Table J-5. Year 20 Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative A

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	517.0	22,487.8	22,660.1	0.2
Separator Units	7.4	53.5	125.7	10.2
Central Compression	493.4	1,354.3	1,721.7	0.1
Alternative A - Tons per Year	**1,017.7**	**23,895.5**	**24,507.5**	**10.4**
P&A Wells - Tons per Year	**(273.7)**	**(11,273.8)**	**(11,404.7)**	**(5.1)**
Alternative A Net Change (Alt A - P&A)	**744.1**	**12,621.7**	**13,102.7**	**5.3**

Table J-6. Reduction of Annual Production and Emissions for the BLM Farmington/Rio Puerco RMPs—P&A Wells

Project Year	New Wells P&Aed[1]	Cumulative Wells P&Aed[1]	Annual Production Loss (Bscf)[2]	Tons per Year			
				VOC	CO	NOx	PM_{10}
1	133	133	3.7	8	341	345	0
2	140	273	7.6	17	699	707	0
3	147	419	11.7	26	1,075	1,087	0
4	154	573	16.1	36	1,470	1,487	1
5	162	735	20.6	46	1,884	1,906	1
6	170	905	25.3	56	2,319	2,346	1
7	178	1,083	30.3	67	2,776	2,808	1
8	187	1,270	35.6	79	3,256	3,294	1
9	197	1,467	41.1	91	3,759	3,803	2
10	206	1,673	46.8	104	4,288	4,338	2
11	217	1,890	52.9	118	4,844	4,900	2
12	227	2,117	59.3	132	5,427	5,490	2
13	239	2,356	66.0	147	6,039	6,109	3
14	251	2,607	73.0	162	6,682	6,760	3
15	263	2,870	80.4	179	7,357	7,443	3
16	276	3,146	88.1	196	8,066	8,160	4
17	290	3,437	96.2	214	8,810	8,913	4
18	305	3,742	104.8	233	9,592	9,703	4
19	320	4,062	113.7	253	10,412	10,533	5
20	336	4,398	123.1	274	11,274	11,405	5
Totals	**4,398**	**39,153**	**1,096**				

Notes: (1) Assumes an annual growth rate of 5%.

(2) Annual production loss = wells in production per year * annual well production. Annual well production = total production for the alternative/total well-years, or 11,158 Bscf/139,556 well-years = 0.07995 Bscf/well-year.

Table J-7. Operational Data for Emission Sources Associated with P&A Wells—BLM Farmington/Rio Puerco RMPs

Scenario/Equipment Type	Horse-power	Load Factor	Hourly Hp-Hr	Annual Hp-Hr	Hourly Fuel Use (scf)	Annual Fuel Use (Mscf)
Average Producing Well						
Wellhead Compressor - Cat G3304[1]	95	0.21	20	177,259	171	1.50
Separator Unit[2]	250,000	0.13	31,250	N/A	35	0.30
Annual Central Compression Needs						
Central Compressor - Cat 3612[3]	0.68	0.90	1	5,361	5	0

Notes: (1) Wellhead compressors expected at 25% of the proposed wells and would operate at 100% load and 85% of the year. Therefore, the annualized load factor per well is 21.3%. Gas heating values = 905 BTUs.

(2) Separator units assumed at 25% of P&A wells and would operate at 100% load and 50% of the year. Therefore, the annualized load factor/well is 12.5%. Horsepower = unit firing rate of 250,000 BTU/Hr and Hourly Hp-Hr = hourly firing rate of 62,500 BTUs/Hr.

(3) Represents central compression associated with one P&A well-year.

Table J-8. First Year Annual Emissions Associated with P&A Wells—BLM Farmington/Rio Puerco RMPs

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	7.8	339.1	341.7	0.0
Separator Units	0.1	0.8	1.9	0.2
Central Compression	0.4	1.0	1.3	0.0
P&A Wells - Tons per Year	**8.3**	**340.9**	**344.9**	**0.2**

Table J-9. Year 20 Annual Emissions Associated with P&A Wells—BLM Farmington/Rio Puerco RMPs

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	257.8	11,213.7	11,299.6	0.1
Separator Units	3.7	26.6	62.5	5.1
Central Compression	12.2	33.5	42.6	0.0
P&A Wells - Tons per Year	**273.7**	**11,273.8**	**11,404.7**	**5.1**

Table J-10. Annual Gas Production Data and Emissions for the BLM Farmington/Rio Puerco RMPs—Alternative B

Project Year	Wells in Production[1]	Annual Production (Bscf)[2]	Tons per Year			
			VOC	CO	NOx	PM_{10}
1	664	53.1	152	3,587	3,678	2
2	1,328	106.3	305	7,174	7,357	3
3	1,991	159.4	457	10,760	11,035	5
4	2,655	212.5	609	14,347	14,713	6
5	3,319	265.7	761	17,934	18,391	8
6	3,983	318.8	914	21,521	22,070	9
7	4,646	371.9	1,066	25,108	25,748	11
8	5,310	425.1	1,218	28,694	29,426	13
9	5,974	478.2	1,370	32,281	33,104	14
10	6,638	531.3	1,523	35,868	36,783	16
11	7,301	584.5	1,675	39,455	40,461	17
12	7,965	637.6	1,827	43,042	44,139	19
13	8,629	690.7	1,979	46,628	47,818	20
14	9,293	743.9	2,132	50,215	51,496	22
15	9,956	797.0	2,284	53,802	55,174	24
16	10,620	850.1	2,436	57,389	58,852	25
17	11,284	903.3	2,588	60,976	62,531	27
18	11,948	956.4	2,741	64,562	66,209	28
19	12,611	1,009.5	2,893	68,149	69,887	30
20	13,275	1,062.7	3,045	71,736	73,565	31
Totals	**139,388**	**11,158**				

Notes: (1) Assumes an annual growth rate of 1/20th of the total wells assumed for the alternative, or 13,275 wells/20 years = 664 wells per year and all wells stay in production once developed.

(2) Annual production = wells in production per year * annual well production. Annual well production = total production for the alternative/total well-years, or 11,158 Bscf/139,388 well-years = 0.08 Bscf/well-year.

Table J-11. Operational Data for Emission Sources Associated with the BLM Farmington/Rio Puerco RMPs—Alternative B

Scenario/Equipment Type	Horse-power	Load Factor	Hourly Hp-Hr	Annual Hp-Hr	Hourly Fuel Use (scf)	Annual Fuel Use (Mscf)
Average Producing Well						
Wellhead Compressor - Cat G3304[1]	95	0.43	40	353,685	341	2.99
Separator Unit[2]	250,000	0.25	62,500	N/A	69	0.60
Annual Central Compression Needs						
Central Compressor - Cat 3612[3]	18,000	0.90	16,200	141,912,000	121,008	1,060

Notes: (1) Wellhead compressors expected at 50% of the proposed wells and would operate at 100% load and 85% of the year. Therefore, the annualized load factor per well is 42.5%. Gas heating values = 905 BTUs.

(2) Separator units expected at 50% of proposed wells and would operate at 100% load and 50% of the year. Therefore, the annualized load factor per well is 25%. Horsepower = unit firing rate of 250,000 BTU/Hr and Hourly Hp-Hr = hourly firing rate of 62,500 BTUs/Hr.

(3) Central compression would reach 360,000 Hp by the end of the 20-year project period. Implementation assumed to be at a rate of 360,000 Hp/20 years = 18,000 Hp/year. The annualized load factor is 90%.

Table J-12. First Year Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative B

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	77.6	3,377.0	3,402.9	0.0
Separator Units	1.1	8.0	18.9	1.5
Central Compression	73.5	201.8	256.5	0.0
Alternative B - Tons per Year	**152.3**	**3,586.8**	**3,678.3**	**1.6**
P&A Wells - Tons per Year	**(8.3)**	**(340.9)**	**(344.9)**	**(0.2)**
Alternative B Net Change (Alt B - P&A)	**144.0**	**3,245.9**	**3,333.4**	**1.4**

Table J-13. Year 20 Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative B

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM^{10}
Wellhead Compressors	1,552.6	67,539.6	68,057.2	0.5
Separator Units	22.1	160.6	377.5	30.5
Central Compression	1,470.4	4,035.9	5,130.9	0.3
Alternative B - Tons per Year	**3,045.1**	**71,736.1**	**73,565.5**	**31.3**
P&A Wells - Tons per Year	**(273.7)**	**(11,273.8)**	**(11,404.7)**	**(5.1)**
Alternative B Net Change (Alt B - P&A)	**2,771.5**	**60,462.3**	**62,160.7**	**26.2**

Table J-14. Annual Gas Production Data and Emissions for the BLM Farmington/Rio Puerco RMPs—Alternative C

Project Year	Wells in Production[1]	Annual Production (Bscf)[2]	Tons per Year			
			VOC	CO	NOx	PM_{10}
1	492	52.4	113	2,658	2,726	1
2	984	104.8	226	5,316	5,451	2
3	1,475	157.2	339	7,973	8,177	3
4	1,967	209.6	451	10,631	10,902	5
5	2,459	262.0	564	13,289	13,628	6
6	2,951	314.3	677	15,947	16,353	7
7	3,443	366.7	790	18,604	19,079	8
8	3,934	419.1	903	21,262	21,805	9
9	4,426	471.5	1,016	23,920	24,530	10
10	4,918	523.9	1,129	26,578	27,256	12
11	5,410	576.3	1,242	29,235	29,981	13
12	5,902	628.7	1,354	31,893	32,707	14
13	6,393	681.1	1,467	34,551	35,432	15
14	6,885	733.5	1,580	37,209	38,158	16
15	7,377	785.9	1,693	39,866	40,884	17
16	7,869	838.2	1,806	42,524	43,609	19
17	8,361	890.6	1,919	45,182	46,335	20
18	8,852	943.0	2,032	47,840	49,060	21
19	9,344	995.4	2,144	50,497	51,786	22
20	9,836	1,047.8	2,257	53,155	54,511	23
Totals	**103,278**	**11,002**				

Notes: (1) Assumes an annual growth rate of 1/20th of the total wells assumed for the alternative, or 13,275 wells/20 years = 664 wells per year and all wells stay in production once developed.

(2) Annual production = wells in production per year * annual well production. Annual well production = total production for the alternative/total well-years, or 11,158 Bscf/139,388 well-years = 0.08 Bscf/well-year.

Table J-15. Operational Data for Emission Sources Associated with the BLM Farmington/Rio Puerco RMPs—Alternative C

Scenario/Equipment Type	Horse-power	Load Factor	Hourly Hp-Hr	Annual Hp-Hr	Hourly Fuel Use (scf)	Annual Fuel Use (Mscf)
Average Producing Well						
Wellhead Compressor - Cat G3304[1]	95	0.43	40	353,685	341	2.99
Separator Unit[2]	250,000	0.25	62,500	N/A	69	0.60
Annual Central Compression Needs						
Central Compressor - Cat 3612[3]	13,350	0.90	12,015	105,251,400	89,747	786

Notes: (1) Wellhead compressors expected at 50% of the proposed wells and would operate at 100% load and 85% of the year. Therefore, the annualized load factor per well is 42.5%. Gas heating values = 905 BTUs.

(2) Separator units expected at 50% of proposed wells and would operate at 100% load and 50% of the year. Therefore, the annualized load factor per well is 25%. Horsepower = unit firing rate of 250,000 BTU/Hr and Hourly Hp-Hr = hourly firing rate of 62,500 BTUs/Hr.

(3) Central compression would reach 267,000 Hp by the end of the 20-year project period. Implementation assumed to be at a rate of 267,000 Hp/20 years = 13,350 Hp/year. The annualized load factor is 90%.

Table J-16. First Year Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative C

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	57.5	2,502.1	2,521.3	0.0
Separator Units	0.8	6.0	14.0	1.1
Central Compression	54.5	149.7	190.3	0.0
Alternative C - Tons per Year	**112.9**	**2,657.8**	**2,725.6**	**1.2**
P&A Wells - Tons per Year	**(8.3)**	**(340.9)**	**(344.9)**	**(0.2)**
Alternative C Net Change (Alt C - P&A)	**104.6**	**2,316.8**	**2,380.7**	**1.0**

Table J-17. Year 20 Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative C

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM^{10}
Wellhead Compressors	1,150.4	50,042.9	50,426.4	0.4
Separator Units	16.4	119.0	279.7	22.6
Central Compression	1,090.6	2,993.3	3,805.4	0.2
Alternative C - Tons per Year	**2,257.3**	**53,155.2**	**54,511.4**	**23.2**
P&A Wells - Tons per Year	**(273.7)**	**(11,273.8)**	**(11,404.7)**	**(5.1)**
Alternative C Net Change (Alt C - P&A)	**1,983.7**	**41,881.4**	**43,106.7**	**18.1**

Table J-18. Annual Gas Production Data and Emissions for the BLM Farmington/Rio Puerco RMPs—Alternative D

Project Year	Wells in Production[1]	Annual Production (Bscf)[2]	Tons per Year			
			VOC	CO	NOx	PM_{10}
1	497	53.0	114	2,686	2,755	1
2	994	106.0	228	5,373	5,510	2
3	1,491	158.9	342	8,059	8,265	4
4	1,988	211.9	456	10,746	11,020	5
5	2,486	264.9	571	13,432	13,775	6
6	2,983	317.9	685	16,119	16,530	7
7	3,480	370.8	799	18,805	19,285	8
8	3,977	423.8	913	21,492	22,040	9
9	4,474	476.8	1,027	24,178	24,795	11
10	4,971	529.8	1,141	26,865	27,550	12
11	5,468	582.7	1,255	29,551	30,305	13
12	5,965	635.7	1,369	32,238	33,060	14
13	6,462	688.7	1,483	34,924	35,815	15
14	6,959	741.7	1,598	37,611	38,570	16
15	7,457	794.6	1,712	40,297	41,325	18
16	7,954	847.6	1,826	42,984	44,081	19
17	8,451	900.6	1,940	45,670	46,836	20
18	8,948	953.6	2,054	48,356	49,591	21
19	9,445	1,006.5	2,168	51,043	52,346	22
20	9,942	1,059.5	2,282	53,729	55,101	23
Totals	**104,391**	**11,125**				

Notes: (1) Assumes an annual growth rate of 1/20th of the total wells assumed for the alternative, or 13,275 wells/20 years = 664 wells per year and all wells stay in production once developed.

(2) Annual production = wells in production per year * annual well production. Annual well production = total production for the alternative/total well-years, or 11,158 Bscf/139,388 well-years = 0.08 Bscf/well-year.

Table J-19. Operational Data for Emission Sources Associated with the BLM Farmington/Rio Puerco RMPs—Alternative D

Scenario/Equipment Type	Horse-power	Load Factor	Hourly Hp-Hr	Annual Hp-Hr	Hourly Fuel Use (scf)	Annual Fuel Use (Mscf)
Average Producing Well						
Wellhead Compressor - Cat G3304[1]	95	0.43	40	353,685	341	2.99
Separator Unit[2]	250,000	0.25	62,500	N/A	69	0.60
Annual Central Compression Needs						
Central Compressor - Cat 3612[3]	13,500	0.90	12,150	106,434,000	90,756	795

Notes: (1) Wellhead compressors expected at 50% of the proposed wells and would operate at 100% load and 85% of the year. Therefore, the annualized load factor per well is 42.5%. Gas heating values = 905 BTUs.

(2) Separator units expected at 50% of proposed wells and would operate at 100% load and 50% of the year. Therefore, the annualized load factor per well is 25%. Horsepower = unit firing rate of 250,000 BTU/Hr and Hourly Hp-Hr = hourly firing rate of 62,500 BTUs/Hr.

(3) Central compression would reach 270,000 Hp by the end of the 20-year project period. Implementation assumed to be at a rate of 270,000 Hp/20 years = 13,500 Hp/year. The annualized load factor is 90%.

Table J-20. First Year Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative D

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM_{10}
Wellhead Compressors	58.1	2,529.1	2,548.5	0.0
Separator Units	0.8	6.0	14.1	1.1
Central Compression	55.1	151.3	192.4	0.0
Alternative D - Tons per Year	**114.1**	**2,686.5**	**2,755.0**	**1.2**
P&A Wells - Tons per Year	**(8.3)**	**(340.9)**	**(344.9)**	**(0.2)**
Alternative D Net Change (Alt D - P&A)	**105.8**	**2,345.5**	**2,410.1**	**1.0**

Table J-21. Year 20 Annual Emissions Associated with the BLM Farmington/Rio Puerco RMPs—Alternative D

Equipment Type	Tons per Year			
	VOC	CO	NOx	PM^{10}
Wellhead Compressors	1,162.8	50,582.2	50,969.8	0.4
Separator Units	16.5	120.3	282.7	22.9
Central Compression	1,102.8	3,026.9	3,848.1	0.2
Alternative D - Tons per Year	**2,282.2**	**53,729.4**	**55,100.7**	**23.5**
P&A Wells - Tons per Year	**(273.7)**	**(11,273.8)**	**(11,404.7)**	**(5.1)**
Alternative D Net Change (Alt D – P&A)	**2,008.5**	**42,455.6**	**43,695.9**	**18.3**

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Appendix K

Summary of Major Federal, State, and County Authorizing Actions

ACTS OF AUTHORITY AND MANDATES

A series of statutes establish and define the authority of the Secretary of the Interior to make decisions regarding fluid minerals leasing and development. The major relevant statutes are briefly described below.

Table K-1. Major Federal, State, and County Authorizing Actions

Agency and Permit/Approval	Nature of Action	Authority	Application
BLM			
Decision Record for proposed action	Evaluate environmental impacts of proposed action	National Environmental Policy Act (NEPA)	Proposed Federal Action
Permit to Drill	Provide for compliance with regulations and requirements during drilling and completion phases of the well	Mineral Leasing Act of 1920; Federal Oil and Gas Royalty Management Act of 1982; Secretarial Order No. 3087; Amendment No. 1, February 7, 1983; Regulatory controls under 43 Code of Federal Regulations (CFR) 3160	Proposed injection wells and oil and gas wells
Rights-of-way	Grant right-of-way and potentially evaluate the environmental impacts of proposed action	NEPA, Federal Land Policy and Management Act (FLPMA), Mineral Leasing Action of 1920	Pipeline, electrical lines, access roads
Notice of Intent to conduct geophysical exploration	Protect resource values during geophysical exploration activities	FLPMA, Mineral Leasing Act of 1920	Proposed action
Approval to dispose of produced water	Controls disposal of produced water from Federal leases	Mineral Leasing Act of 1920, Regulatory controls under 43 CFR 3160	Well
Permit to use earthen pit (part of Application for Permit to Drill)	Regulates reserve pits on drilling location	Mineral Leasing Act of 1920, Regulatory controls under 43 CFR 3160	Well
Authorization for flaring and venting of gas	Regulates flaring and venting of gas	Mineral Leasing Act of 1920, Regulatory controls under 43 CFR 3160	Well testing and Evaluation
Temporary abandonment of a well	Regulates temporary abandonment of wells	Mineral Leasing Act of 1920, Regulatory controls under 43 CFR 3160	Successful well
Plugging and abandonment of a well	Establishes procedures for permanent abandonment	Mineral Leasing Act of 1920, Regulatory controls under 43 CFR 3160	Dry hole

Agency and Permit/Approval	Nature of Action	Authority	Application
U.S. Army Corps of Engineers			
Section 404 permit	Issue a permit for placement of fill or dredge materials in waters of the United States or adjacent wetlands	Section 404, Clean Water Act (CWA)	Pipeline, road, proposed actions in waters of the United States
U.S. Fish and Wildlife Service			
Consultation process, threatened or endangered species	Review potential impacts on Federally listed and candidate threatened and endangered species	Section 7 of the Endangered Species Act	Federal action
U.S. Environmental Protection Agency			
(Administered by New Mexico Water Quality Control Commission) Stormwater discharge permits (National Pollutant Discharge Elimination System permits)	Regulate discharge to surface waters from point sources	Federal Water Pollution Control Act Amendments and Section 404(p) of CWA	Construction activities disturbing one or more acres
Permit for approval to dispose produced water (also must be approved by the surface management agency)	Issue permit to allow underground injection of produced water	Federal Safe Drinking Water Act, 40 CFR Parts 144 and 147	Underground injection control
(Administered by the Oil Conservation Division of the New Mexico Energy and Minerals Department) Underground Injection Control permit	Ensure potable aquifers are not adversely affected by injection of produced water	Federal Safe Drinking Water Act Underground Injection Control program (40 CFR Parts 144 and 146.22 and 40 CFR Parts 100 to 149, July 1, 1991 revision), Onshore Order No. 7	New injection well
Spill prevention, control, and countermeasure plan	Pollution control	40 CFR Part 112	Drilling operations
New Mexico State Historic Preservation Officer			
Cultural resource Clearance	Review and consultation	Historic Preservation Act of 1966, State Cultural Properties Act of 1977	All proposed action components
New Mexico State Engineer Office			
Permit to appropriate groundwater within declared groundwater basins; approval to use surface water rights	Regulate groundwater use, permit for water wells; regulate surface water use, surface water right	New Mexico Oil and Gas Act, Water Quality Act, NM State Constitution (surface water rights)	All well development

Agency and Permit/Approval	Nature of Action	Authority	Application
New Mexico Energy, Minerals, and Natural Resources Department – Oil Conservation Division			
Permit to drill, re-enter, deepen, plugback, or add a zone (Form C-101)	Permit new wells	New Mexico Oil and Gas Act	New well development
Request for allowable and authorization to transport oil and natural gas (Form C-104)	Permit new wells	New Mexico Oil and Gas Act	New well development
Spill report	Notification of fire, breaks, leaks, spills, and blowouts	OCD Rule 116	In the event of fire, breaks, leaks, spills, and blowouts at drilling operations
New Mexico Environment Department – Air Quality Bureau			
Air emission permits	Permit new sources	Clean Air Act	Combustion sources, compressors, volatile chemical handling, storage piles, and storage tanks

Source: BLM 2000.

REFERENCES

BLM 2000 Bureau of Land Management. 2000. *Draft RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties*. Las Cruces Field Office. Las Cruces, New Mexico. October.

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Appendix L

A Broad Comparison of Coalbed Methane Operations in the San Juan Basin and Powder River Basin

A BROAD COMPARISON OF COALBED METHANE OPERATIONS IN THE SAN JUAN BASIN AND POWDER RIVER BASIN

The following discussion is an overview of coalbed methane (CBM) operations in the San Juan basin of northwestern New Mexico and the Powder River basin of central Wyoming. It includes a brief description of how CBM is formed and provides the basis examining why production operations may vary from play to play.

The production of CBM gas varies according to the physical nature of the gas reservoir and its hydrogeologic setting. CBM is a natural gas that is generated during the conversion of plant materials to coal and is associated with coal beds. It is formed as plant material accumulated in swamps and bogs was subsequently buried in an anoxic environment. The plant material was initially converted to peat as a result of increasing heat and pressure, then to higher grades of coal such as lignite, subbituminous and bituminous coal, and finally, to anthracite. This process is called coalification. Geologic conditions determine the quality of coal that is formed. Thermogenic methane is formed when the temperature in the coalbed exceeds that in which bacteria can live. Secondary, biogenic gas is that gas that is generated by microbes at the coal cleat-water interface. CBM can be adsorbed on the coal, absorbed within the micropores of the coal, stored as free gas in natural fractures called cleats, or contained within water occupying the cleats as solution gas. As coalification takes place, volatile hydrocarbons (usually ethane), carbon dioxide, nitrogen, and water are accumulated. Some gas may escape to the surface or migrate into adjacent rock reservoirs. CBM consists of more than 98 percent methane.

CBM production depends upon the degree of water saturation in the coal cleats and the formation pressure. Considerable CBM is absorbed to the surfaces of the coal matrix and is not free to migrate until water pressure is relieved by lowering the hydrostatic head. Coal that is gas-saturated yields gas upon initial production. Coal that is water-saturated must be depressurized, or dewatered, to facilitate gas desorption. Initial production from water-saturated reservoirs consists of water and little commercial gas (Ayers 2002). Over time, volumes of water produced from a wellbore typically decrease, and CBM production increases as coalbeds near the wellbore are dewatered (USGS 2000).

FRUITLAND FORMATION IN THE SAN JUAN BASIN

Coalbed gas in the San Juan Basin is produced from the Cretaceous Fruitland formation. Production of CBM from the Fruitland coalbeds began in the late 1980s. As of 2000, more than 80 percent of the CBM production in the United States originated from the San Juan basin. The Fruitland coalbeds formed in coastal plain settings and consist of many interfingering deposits. The coalbeds exhibit a net thickness of 50 to 70 feet. A typical wellbore may encounter 6 to 12 coalbeds with a maximum thickness of 20 to 30 feet for any particular coalbed (Ayers 2002).

Studies conducted in the late 1980s determined that coalbed gas occurrence could be defined as three distinct trends, each exhibiting different gas compositions and production characteristics. Trend 1, in the northeastern part of the basin, is named the “fairway” and is the most productive trend. Trend 2 extends from the central part of the basin to its western edge, and Trend 3 includes the eastern and southern part of the basin. Trend 1 is an overpressured area containing thermogenic CBM and up to 30 percent secondary biogenic gas. Trends 2 and 3 result from coalbeds that are less thermally mature and exhibit a lower gas content. Trend 3 is characterized by low permeability coal and limited coalbed gas production.

Groundwater recharge occurs at the northern edge of the San Juan basin. Trend 1 water is characterized by sodium bicarbonate and low chlorides. Total dissolved solids range from moderately to high values. Both chlorides and total dissolved solids (TDS) increase in waters contained in the coalbeds of Trend 3. A hydrochemical boundary occurs at the boundary of the overpressured Trend 1 and underpressured Trends 2 and 3. Waters in Trends 2 and 3 are high chloride waters. The amount of water produced in association with coalbed gas is greatest with fairway wells. In 1992, the average amount of water produced with a CBM well in the northern part of the basin was approximately 250 barrels of water daily. Average daily water production decreases toward the south (Ayers 2002).

There are approximately 3,100 Fruitland wells, 600 of which are in the fairway. Fruitland wells are drilled on 320-acre spacing to an average depth of 2,600 feet. Fruitland coalbed wells in the fairway are usually completed as open-hole cavities at depths that range from 750 to 3,600 feet and produce up to 6 million cubic feet (MMcf) gas per day. Permeability in the Fruitland is facilitated by two face-cleat systems and is highest in the fairway. Fracture stimulation with water may be required to enhance producibility. Parts of the basin in Trends 2 and 3 may require fracture simulation through a cased wellbore. These wells produce from 50 to 500 thousand cubic feet (Mcf) gas per day (Ayers 2002). A few horizontal wells have been drilled in the Fruitland; however, the incremental amount of production did not offset the increased cost of drilling and completion (Palmer et al. 1993).

FORT UNION FORMATION IN THE POWDER RIVER BASIN

Coalbed gas in the Powder River basin is produced from the Tertiary Fort Union formation. Although some CBM drilling in the Powder River basin was initiated in the late 1980s, it was in the late 1990s that the potential of the Fort Union CBM play was recognized. The Powder River basin is currently the most active area of CBM drilling in the United States. These coalbeds are shallow (less than 3,000 feet) and thermally immature (subbituminous coal). The net thickness of the coalbeds ranges from 50 to greater than 215 feet. The center of the basin is overpressured because of greater adsorbed gas content. There are two depositional theories that describe the formation of the Fort Union coalbeds; however, both models reflect thick, extensive coal beds that split and pinch out from the basin center.

The Fort Union contains an abundance of low concentrations of biogenic methane and is considered a major aquifer. Groundwater recharge occurs primarily along the eastern outcrop of the formation. Biogenic methane and carbon dioxide are generated by microbes within the dynamic formation water. When water is produced in association with CBM production, it can sometimes be disposed of into surface drainages, streams, or ponds for beneficial use (Ayers 2002). Water quality is considered good. TDS levels for water released on the surface for beneficial uses range from 1,000 to 2,000 milligrams per liter (mg/L) (USGS 2000).

Although very thick, the low gas content, low pressure, high permeability coals of the Powder River were not at first thought to be good candidates for CBM development. The Powder River basin currently contains approximately 8,167 CBM wells, with 3,655 wells being drilled in 2001 (Ayers 2002). Fort Union wells are drilled on 80-acre spacing. Most wells are less than 750 feet deep. In the Powder River basin, operators have learned to complete shallow wells, pump large quantities of water to move low-pressure gas at a low cost. Some operators are examining the possibility of drilling horizontal wells although the shallow total vertical well depth would make drilling and production difficult (Lang 2000). Fort Union coalbeds are usually produced through open hole completions in a single thick coal seam. Light water fracture stimulation is sometimes required to facilitate production. Average gas production of the wells ranges from 130 to 350 Mcf gas per day after the well has been depressurized for several months. The average amount of water produced from a typical CBM well ranges from approximately 200 barrels to 500 barrels of water daily. Deeper wells in the more central part of the basin may produce greater than 1,000 barrels of water per day. Average daily water production decreases toward the southern part of the basin (Ayers 2002). The average economic life of a Fort Union CBM well is approximately seven years.

COMPARISIONS BETWEEN FRUITLAND AND FORT UNION CBM PRODUCTION

Operators have discovered that rules of thumb determined while drilling for CBM in the San Juan basin cannot be universally applied to other CBM reservoirs. According to reservoir engineers who work with CBM, "The one thing coalbed methane plays in the US have in common is that they are all different. You have to consider the complete package of coal characteristics, regional geology, and infrastructure" (Lang 2000). Analyzing geologic and hydrogeologic controls along with appropriate production techniques define the key elements of CBM occurrence and producibility. Structural and depositional history determines the thermal maturation of a coalbed, cleat characteristics, and hydrology. The degree of thermal maturation corresponds to the CBM saturation in the coalbed. Cleat characteristics determine the degree of permeability. Hydrological constraints determine the amount and the chemical composition of the subsurface water contained in the coalbed formations (Avery 2002).

Horizontal drilling and completion techniques may be more successful when accessing a single extensive coalbed rather than accessing multiple vertical layers of coalbeds. Although horizontal drilling has been economically prohibitive in the San Juan basin, it may be a feasible technology to employ in the Powder River basin.

Dewatering the coal seam to release and produce CBM through the wellbore has also been known to release methane to the surface in areas where the coalbed is located relatively near the surface (Merschat 1999). Shallow coalbeds are more likely to vent methane to the surface as the coalbeds are dewatered. The average depth of a Fruitland coalbed is much deeper the average depth of a Powder River coalbed; however, gas seepage has been noted in both the Powder River basin and the rim of the San Juan basin near Fruitland coals outcrop. Gas seepage can result in dead vegetation, an increase in the methane content of surface soils, and an apparent increase in the occurrence of methane in domestic water wells (BLM 1999). Dewatering the producing formation can also result in the lowering of the water table, adversely impacting water production from water wells producing from the Fort Union formation.

CBM wells producing from the Fruitland formation in the San Juan basin produce, in general, less water than the average amount of water produced in association with CBM in the Powder River basin. Because the water in the Powder River basin is potable (less than 500 mg/L TDS), a large portion of CBM-produced water could be stored or released on the surface.

Although research is being performed to investigate remediation of San Juan basin CBM-produced water for beneficial use, the high-TDS water produced in the San Juan basin will continue to be injected into deep subsurface formations until an alternative disposal technology is substantiated.

CBM-produced water is not typically reinjected into the producing formation to enhance recovery through fracture stimulation (USGS 2000).

REFERENCES

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BLM 1999	Bureau of Land Management. 1999. *Coalbed Methane Development in the Northern San Juan Basin of Colorado: A Brief History and Environmental Observations—A Working Document.*
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Appendix M

Summary of Section 7 Consultation for Threatened/Endangered/Proposed Species

SUMMARY OF SECTION 7 CONSULTATION FOR THREATENED/ENDANGERED/PROPOSED SPECIES

Section 7 (a) (2.) of the Endangered Species Act requires that Federal agencies proposing any activities which may affect Federal listed Threatened or Endangered species consult with the U.S. Fish and Wildlife Service to ensure that they are not likely to jeopardize the existence of listed species or adversely modify designated critical habitat. As part of the consultation process, a biological assessment (BA) was prepared to determine potential effects of activities proposed in the Draft Farmington Resource Management Plan (DRMP) on listed species and critical habitat. The following summarizes the consultation process and provides key excerpts from the BA prepared for the DRMP. The full document contains 109 pages, excluding maps, and is on file at the FFO.

CONSULTATION HISTORY

The Farmington Field Office sent a letter to the U.S. Fish and Wildlife Service on April 25, 2001, requesting a list of Federal Threatened, Endangered, or Proposed species for the project area. A response was received on May 30, 2001 (Cons. #2-22-01-I-389). A draft Biological Assessment was prepared and sent to USFWS for preliminary review. A coordination meeting between the USFWS Albuquerque Field Office and BLM Farmington Field Office staffs was held on July 30, 2002, to discuss the species present in the area and how they might be affected by the actions proposed in the DRMP. The Final BA was delivered to USFWS on September 24, 2002. On October 2, 2002, the USFWS sent a memorandum confirming their concurrence with the effects determinations contained in the BA and concluding Section 7 consultation.

BIOLOGICAL ASSESSMENT EXCERPTS

Eight federally listed and one proposed species are known to occur or have the potential to occur within the planning area (**Table M-1**). In addition, designated critical habitat for the Mexican spotted owl (*Strix occidentalis lucida*) occurs on FFO land. Critical habitat for the Colorado pikeminnow includes part of the San Juan River and the 100-year floodplain from the State Highway 371 Bridge in Farmington down to Lake Powell. This includes all FFO river tracts along the San Juan River between West Farmington and the border of The Navajo Nation. All nine species and the critical habitat will be assessed for the FFO land. Fewer species will be assessed on other federal land because fewer species occur or have the potential to occur on these lands. No designated critical habitat exists outside of the FFO area. The effects of oil and gas development are analyzed for the Knowlton's cactus (*Pediocactus* knowltonii) and bald eagle (*Haliaeetus lecocephalus*) on USBR land, and the mountain plover (*Charadrius montanus*) and southwestern willow flycatcher on AFO land.

Biological Evaluations (BEs), prepared for the grazing allotments on FFO land (BLM 1999a,b,c,d; 2000b; 2001a), addressed BLM's grazing program and evaluated its potential impacts on federally listed and proposed species and critical habitat. It was determined that grazing in six allotments bordering Navajo Reservoir may affect, but is not likely to adversely affect, wintering bald eagles in five allotments, Colorado pikeminnow in one allotment, and Knowlton's cactus in one allotment. It was determined that grazing in these allotments would have no effect on the remaining species. USFWS concurred with these determinations (BLM 1999a) (Cons. #2-22-99-1-419). The BE determined that on 16 riparian grazing allotments along intermittent and ephemeral drainages, and on 117 upland allotments, grazing may affect, but is not likely to adversely affect, the Colorado pikeminnow and razorback sucker, and have no effect on the remaining species (BLM 1999b), to which the USFWS concurred (Cons. #2-22-99-1-419A). On seven upland allotments, the BE determined that grazing may affect, but is not likely to adversely affect, the Colorado pikeminnow and razorback sucker in all seven allotments, the bald eagle in one allotment, the southwestern willow flycatcher in two allotments, the Mancos milkvetch in one allotment, and the Mesa Verde cactus in three allotments (BLM 1999c). It was determined that grazing would have no effect on the remaining species, with concurrence from the USFWS (Cons. #2-22-99-1-419B). On six allotments in riverine riparian habitat, the BE found that the BLM grazing program may affect, but is not likely to adversely affect, the bald eagle, southwestern willow flycatcher, Colorado pikeminnow, and razorback sucker, and would have no effect on the remaining species (BLM 1999d). The USFWS concurred with these determinations (Cons. #2-22-99-1-419C). In 18 upland allotments containing potential mountain plover habitat, it was determined that the BLM's grazing program may affect, but is not likely to adversely affect, the mountain plover and would have no effect on the other species (BLM 2000b), to which the USFWS concurred (Cons. #2-22-99-1-419D).

Table M-1. Effects Determination for Federally Listed and Proposed Species and Critical Habitat Known to Occur or Potentially Occurring within the Planning Area

Species/Critical Habitat		Status[a]	Effects Determination
Common name	Scientific name		
Knowlton's cactus	*Pediocactus knowltonii*	E	May affect-not likely to adversely affect
Mesa Verde cactus	*Sclerocactus mesae-verdae*	T	May affect-not likely to adversely affect
Mancos milkvetch	*Astragalus humillimus*	E	May affect-not likely to adversely affect
Colorado pikeminnow	*Ptychocheilus lucius*	E	May affect-not likely to adversely affect
Razorback sucker	*Xyrauchen texanus*	E	May affect-not likely to adversely affect
Colorado pikeminnow critical habitat	—		May affect-not likely to adversely affect
Bald eagle	*Haliaeetus leucocephalus*	T	May affect-not likely to adversely affect
Mountain plover	*Charadrius montanus*	PT	May affect-not likely to adversely affect
Mexican spotted owl	*Strix occidentalis lucida*	T	May affect-not likely to adversely affect
Mexican spotted owl critical habitat	—		May affect-not likely to adversely affect
Southwestern willow flycatcher	*Empidonax trailii extimus*	E	May affect-not likely to adversely affect

Notes: (a) E = Endangered, T = Threatened, PT = Proposed Threatened.

A BE that addressed three grazing allotments containing Mexican spotted owl critical habitat was submitted to the USFWS in 2001 (BLM 2001a). It assessed the potential effects of the BLM grazing program and determined that this program may affect, but is not likely to adversely affect, Mexican spotted owl critical habitat, to which the USFWS agreed (Cons. #22-22-02-I-240).

EFFECTS DETERMINATION RATIONALE

Knowlton's Cactus

Implementation of the Preferred Alternative may affect, but is not likely to adversely affect, Knowlton's cactus for the following reasons:

- Mineral development and OHV activities are not allowed within the fenced population on FFO land.
- Preconstruction surveys are required in all potential Knowlton's cactus habitat prior to construction.
- No oil and gas well pads and roads would be allowed in potential Knowlton's cactus habitat.
- Pipeline ROWs would be allowed contingent on conducting extensive biological surveys and adhering to stringent rehabilitation requirements.
- Monitoring surveys will continue to provide natural resource personnel with the necessary information to manage and protect FFO and USBR natural and transplant populations.

Mesa Verde Cactus

Implementation of the Preferred Alternative may affect, but is not likely to adversely affect, the Mesa Verde cactus for the following reasons:

- Oil and gas development in potential Mesa Verde cactus habitat cannot proceed without preconstruction surveys. BLM protects Mesa Verde cactus and potential habitat from development. If a project was proposed that would impact the Mesa Verde cactus and could not be relocated, consultation with the Service would be initiated.
- OHV traffic would be allowed only on graded and maintained roads in The Hogback ACEC. Measures have been taken to protect the Mesa Verde cactus from unauthorized OHV activity, such as placement of signs, closing roads, and public education.
- Coal mining would not be allowed in known or potential Mesa Verde cactus habitat consistent with Unsuitability Criterion 9.

Monitoring surveys of the Mesa Verde cactus populations will continue. This will provide BLM natural resource personnel the necessary information to manage this species.

Mancos Milkvetch

Implementation of the Preferred Alternative may affect, but is not likely to adversely affect, the Mancos milkvetch for the following reasons:

- Proposed oil and gas development in the area of potential Mancos milkvetch habitat cannot proceed without preconstruction surveys. The loss of potential Mancos milkvetch habitat is not allowed.
- OHV traffic would be allowed only on graded and maintained roads in The Hogback ACEC. This measure, and other measures specified above, have been taken to protect The Hogback ACEC from unauthorized OHV activity.
- Coal mining would not be allowed in known or potential Mancos milkvetch habitat, consistent with Unsuitability Criterion 9.

Monitoring surveys of the Mancos milkvetch populations will continue to provide natural resource personnel the necessary information to manage this species.

Colorado Pikeminnow

Based on the analysis of potential impacts from FFO programs under the Preferred Alternative assessed in this BA, the BLM has determined that these programs may affect, but are not likely to adversely affect, the Colorado pikeminnow or its critical habitat for the following reasons:

- The conclusion of a study regarding PAHs generated by oil and gas development and operations activities is that PAHs are not entering the San Juan River or its tributaries via groundwater or surface water flows.
- The use of water for oil and gas development and any other federally permitted project that would require the purchase of water would be limited to water acquired under an established legal water rights permit.
- OHV use would not occur in the River Tracts; all vehicles would be restricted to graded and maintained roads. Therefore, there would be no degradation of Colorado pikeminnow habitat due to OHV use in these areas.
- Coal mining would not be permitted in riparian areas and along major waterways.

Minor water depletions from stock ponds on FFO land would not jeopardize the continued existence of the Colorado pikeminnow or result in the adverse modification or destruction of its critical habitat because total stock pond depletions are below 100 acre-feet at any one time and the aggregate annual depletion is less than 3,000 acre-feet.

Razorback Sucker

Based on the analysis of potential impacts from FFO programs under the Preferred Alternative assessed in this BA, the BLM has determined that these programs may affect, but are not likely to adversely affect, the razorback sucker or its habitat for the following reasons:

- The conclusion of a study regarding PAHs generated by oil and gas development and operations activities are that PAHs are not entering the San Juan River or its tributaries via groundwater or surface water flows.
- The use of water for oil and gas development and any other federally permitted project that would require the purchase of water would be limited to water acquired under an established legal water rights permit.
- OHV use would be restricted to existing maintained roads, so OHV use would not result in the degradation of the razorback sucker potential habitat.
- Coal mining would not be allowed in critical habitat or riverine 100-year floodplains, consistent with Unsuitability Criteria 9 and 16.
- Minor water depletions from stock ponds on FFO land would not jeopardize the continued existence of the razorback sucker or affect its potential habitat because these depletions would be less than 100 acre-feet at any one time and the aggregate annual depletion is less than 3,000 acre-feet.

Bald Eagle

The BLM has determined that implementation of the Preferred Alternative may affect, but is not likely to adversely affect, the bald eagle because:

- No new oil and gas wells, service roads, or any habitat disturbance would be authorized in Bald Eagle ACEC core areas, and construction activities in buffer zones would be strongly discouraged. In addition, the USBR would not authorize new wells within 1,500 feet of

Navajo Dam and its appurtenant structures, within 500 feet of the maximum high water line of Navajo Reservoir, or within 500 feet of the San Juan River.

- If wells were constructed in the buffer zone of the ACEC units on BLM land, construction activity would not be allowed between November 1 and March 31.

OHV traffic would not be allowed on any trails, two-tracks, or off-road in the ACEC units. In addition, OHV traffic is not allowed in the Bald Eagle ACEC units from November 1 to March 31.

Mountain Plover

The FFO and AFO conclude that the implementation of the Preferred Alternative may affect, but is not likely adversely affect, the mountain plover for the following reasons:

- Little oil and gas development activities would take place in the potential mountain plover habitat.
- Operators proposing an oil and gas facility such as a pipeline in potential mountain plover habitat would be required to conduct preconstruction surveys if activities would take place during the mountain plover breeding season.
- Site-specific constraints would be developed if the mountain plover were found in a proposed project area, to ensure that the project would not have a negative impact on the plover.
- Projects that would create a permanent noise source that would impact nesting plovers would be subject to noise level mitigation.
- Oil and gas facilities such as pipelines would be required to be revegetated with native plant species.

In addition, the FFO concludes that other activities addressed under the Preferred Alternative may affect, but are not likely to adversely affect, the mountain plover for the following reasons:

- There are currently no plans for coal mining to take place in or near potential mountain plover habitat. If such development were proposed, the BLM would initiate the ESA consultation process.

OHV use of potential mountain plover habitat would be limited under the Preferred Alternative.

Mexican Spotted Owl

The BLM concludes that the Preferred Alternative may affect, but is not likely to adversely affect, the Mexican spotted owl or its critical habitat on FFO land for the following reasons:

- The cutting down of large ponderosa pine and Douglas fir would not be allowed, thus protecting the primary Mexican spotted owl potential habitat.
- Mexican spotted owl nocturnal surveys would be required if construction activities would occur within one-half mile of potential habitat during the breeding season. These surveys can take place for 1 year if they occur within 3 years after the completion of the formal protocol surveys. If more than 3 years have passed since completion of the formal protocol surveys, the developer would be required to conduct 2 years of surveys following the USFS protocol.
- If the Mexican spotted owl has occupied a territory in the area, no drilling or other human activity would take place within a buffer zone of one-quarter mile around the nest site during the breeding season.

- No oil and gas development would be allowed in the mixed conifer forest that is the primary potential habitat of this species.
- Coal leasing and development activities would be very unlikely in or near the Mexican spotted owl critical habitat or other marginally potential Mexican spotted owl habitats. If coal leasing and development were proposed in these areas, the NEPA process would be followed and a consultation with USFWS would be initiated.
- OHV activity would be restricted to graded and maintained roads under the Preferred Alternative in all potential Mexican spotted owl habitat.
- A Mexican spotted owl critical habitat ACEC would be implemented under the Preferred Alternative.
- No Mexican spotted owl nesting has been documented on BLM lands, and no PACs have been established on BLM lands.

Southwestern Willow Flycatcher

The BLM has determined that the Preferred Alternative may affect, but is not likely to adversely affect, the southwestern willow flycatcher on FFO and AFO land for the following reasons:

- All oil and gas development projects such as wells, roads, and pipelines are discouraged in potential habitat. Since the listing of the southwestern willow flycatcher, no projects that impact designated potential habitat have been authorized. Proposed projects have been moved or rerouted to avoid habitat impacts. In the future, if a proposed project could not be moved or rerouted, the appropriate NEPA document would be prepared and consultation with the USFWS would be initiated.
- The FFO has completed the Southwestern Willow Flycatcher Habitat Management Plan (BLM 1988) and the Riparian and Aquatic Habitat Management Plan (BLM 2000c) to provide protection for all designated riparian habitats, including all of the designated potential southwestern willow flycatcher habitat. Cadastral land surveys have been conducted and fences have been constructed on the River Tracts.
- The FFO will retain all lands that support potential southwestern willow flycatcher habitat. The AFO has placed a high priority on the restoration and protection of riparian areas under its jurisdiction, including the potential southwestern willow flycatcher habitat on AFO within the project boundary.
- Coal leasing and development in potential southwestern willow flycatcher habitat is unlikely and would not be allowed, consistent with Unsuitability Criteria #9, to protect habitat of essential value for T&E species.
- OHV use is restricted to graded and maintained roads in and in the area of potential southwestern willow flycatcher habitat.

Appendix N

Descriptions of Specially Designated Areas under the Preferred Alternative

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INTRODUCTION

This section contains information on the specially designated areas (SDA) included in this Resource Management Plan under the Preferred Alternative, Alternative D. Some of these areas were carried forward from previous planning documents and some were newly proposed or incorporate boundary changes as described in the Final EIS. These areas have been designated by FFO staff in order to protect specific resource values within the boundaries. In some cases, the areas were delineated in response to requests or identified needs from the public. In other cases, the areas were delineated to protect resources, such as those of cultural, paleontological, or other natural value, that possess local, regional, or national significance.

SDA is the general term that may apply to Areas of Critical Environmental Concern (ACEC) or other areas such as Wildlife, Recreation, or Riparian Areas. It also includes Wilderness Areas and Wilderness Study Areas.

This appendix is organized by grouping the SDAs under their main resource value they were delineated to protect, then in alphabetical order under each resource. The Cultural SDAs have also been grouped by seven site types under which the ACECs are listed in alphabetical order.

Each SDA description includes a general description, management goals, management prescriptions, and a corresponding location map. The management prescriptions include those listed in Table 2-5 of the Final EIS as well as some that will guide FFO activities and budgets for managing the areas, such as the development of activity plans. Detailed activity plans, to be developed after RMP approval, will contain more specific information. It is important to note that information described in this document is subject to modification during activity level planning for specific SDAs. Where possible, management prescriptions listed will be implemented upon RMP approval. In general, OHV designations, mineral withdrawals, and land actions will be carried out first.

Management prescriptions do not invalidate prior existing rights. In SDAs with existing leases for oil and gas, Conditions of Approval attached to APDs and siting requirements will be applied during the permit process. Unless otherwise noted, the management prescription “Closed to all other forms of mineral entry” refers to all forms of non-oil and gas mineral sales, leases, permits, or claims for which there is no valid prior existing right.

Master Title Plat maps maintained in the FFO by resource specialists are the legal authority for SDA boundaries, total acreage, land status, and mineral ownership. While each SDA in this appendix lists the acreage of all land within the boundary, public land, and federal mineral ownership, these acreage measurements are the same as those listed in Table 2-5 of the Final EIS and were derived using GIS data. They may differ from those on the Master Title Plats.

1. CULTURAL

GENERAL DESCRIPTION

The FFO area encompasses one of the most dense areas of significant cultural resources in the nation. The term, cultural resources, includes archaeological sites and areas of traditional cultural importance. Designation of the SDAs in this section was completed in order to ensure the long-term protection of important cultural resources for future generations of researchers, for public enjoyment, and for preservation of Native American sacred sites.

All of the cultural SDAs have been formally designated as ACECs. A total of 79 ACECs are described in this section under seven headings, Anasazi Communities (Non-Chacoan), Chacoan Outliers, Chacoan Roads, Early Navajo Defensive Sites and Communities, Historic Sites, Native American Traditional Use and Sacred Areas, and Petroglyph and Pictograph Sites.

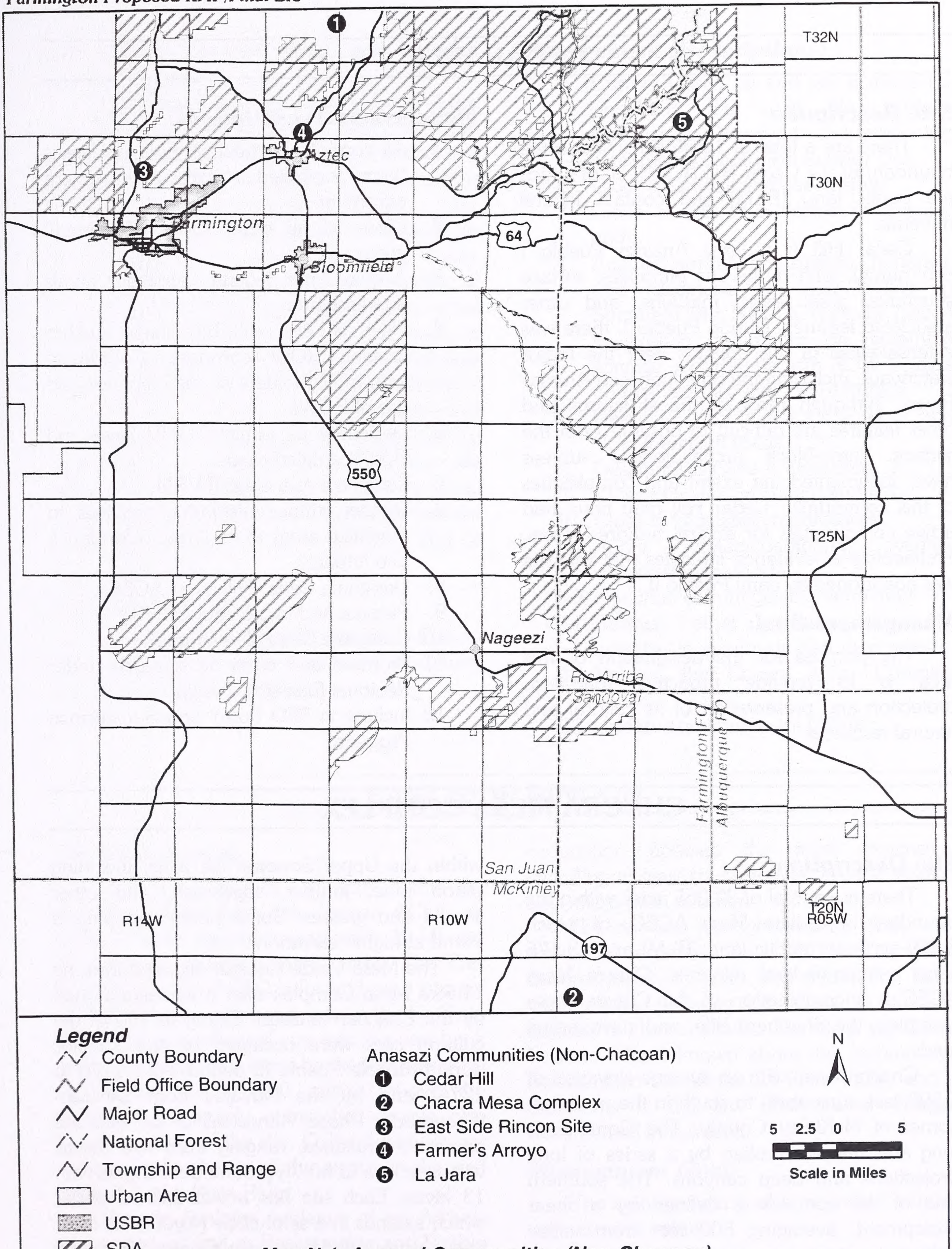
There is a brief description of each site type with a map showing the approximate locations of all of the ACECs included under each heading at the beginning of each section, followed by more detailed descriptions of each ACEC with management prescriptions. FFO activities may include such activities as developing or implementing a Cultural Resource Management Plan (CRMP), conducting an inventory to fully document the site, or nomination to the National Register of Historic Places (NRHP) or the State Register of Cultural Properties.

ANASAZI COMMUNITIES (NON-CHACOAN)

General Description

This group of ACECs includes five areas that are important to the Anasazi culture but either pre-date or post-date the Chaco phenomenon that dominated the region during the Pueblo II period between A.D. 900 to 1050. Few non-Chacoan sites had been designated in prior RMP documents. These new ACECs and the identification of this group of SDAs improves the protection of a representative sample of important cultural resources.

In some cases, sites that were previously designated as ACECs or Special Management Areas with other time period or cultural associations are included within the boundaries of an ACEC whose primary designation is Anasazi Communities (Non-Chacoan) and are not listed or mapped twice in this appendix. These are noted in the descriptions of each ACEC if they occur.



Map N-1: Anasazi Communities (Non-Chacoan)

CEDAR HILL

Site Description:

There are a total of 1,886 acres within the boundary of the Cedar Hill ACEC, all of which are public land (BLM) and contain federal minerals.

Cedar Hill is a large Anasazi Pueblo I community, with numerous pithouses, surface structures, great kivas, middens, and other associated features. During Pueblo I, there was extensive use of the uplands near the major waterways, including the San Juan and Animas Rivers. Although most of the structures and other features are difficult to observe from the surface, large-block archaeological surveys have documented the extent and complexities of this community. Cedar Hill may have had active communities for several hundred years. Archaeological evidence indicates that this site was abandoned by early Pueblo II.

Management Goal:

The purpose for the designation of this area is to provide proactive long-term protection and preservation of its cultural and natural resources.

Management Prescriptions:

1. All current and new oil and gas leases have controlled surface management constraint.
2. Close to all other forms of mineral entry.
3. Acquire non-federal surface/minerals and easement.
4. New ROWs will be placed within existing ROW corridors. Coordinate with ROW holders on maintenance and use of ROWs.
5. Designate as Limited OHV Area and close identified roads.
6. Designate as a Class II VRM.
7. Restrict surface disturbing activities to identified areas to minimize disturbance and impacts.
8. Designate Cedar Hill as an ACEC.
9. Prepare and implement CRMP.
10. Complete Class III inventory.
11. Promote and continue research under Regional Research Design.
12. Include in FFO Patrol and Surveillance Program.

CHACRA MESA COMPLEX

Site Description:

There are a total of 22,065 acres within the boundary of Chacra Mesa ACEC, of which 8,629 acres are public land (BLM) and 13,476 acres contain federal minerals. Chacra Mesa ACEC is a combination of the Chacra Mesa Complex, the Shepherd Site, and surrounding lands.

Chacra Mesa, with an average elevation of 6,500 feet, runs north to south in the northeast corner of McKinley County. The Complex is long and narrow, broken by a series of long projections and deep canyons. The southern side of the complex is defined by a sheer escarpment, averaging 500 feet from valley bottom to mesa top. Vegetation is primarily within the Upper Sonoran life zone, including piñon pine, juniper, sagebrush, and other shrubs and grasses. Some ponderosa pine is found at higher elevations.

The Mesa Verde Anasazi migrated into the Chacra Mesa Complex after it was abandoned by the Chacoan Anasazi. Eighty to 100 of the cultural sites were occupied by the Pueblos during the late Pueblo III period (A.D. 1175 to 1274) and by the Navajos from Dinétah-Gobernador Phase. Almost all of the sites are one-story structures, ranging from two rooms with one kiva to 50-75 ground floor rooms with 13 kivas. Each site has a well-defined plaza, which extends in a semi-circle beyond the kiva, and is surrounded by construction rubble mixed with ceramics, chipped stone, and ash and charcoal deposits.

Chacra Mesa is relatively secluded and has seen little development or vandalism. The sites are in excellent condition, with some standing walls up to six feet in height. The site is in a generally stable condition with high archaeological potential. Extensive oil and gas development in the central San Juan Basin, however, could endanger the pristine nature of Chacra Mesa. Additionally, opening new areas to vehicle traffic may increase the frequency of illegal excavation and collection of valuable cultural resources. The 40-acre Shepherd Site is a four room, two story pueblito constructed around A.D. 1739. This site is defensively positioned on a bench above a relatively wide valley with deep alluvial soils. Corncobs found in the trash and in the floors and walls indicate that agriculture was a very important part of local subsistence.

Management Goal:

Management emphasis for the Chacra Mesa ACEC will be the protection of cultural and visual resource values.

Management Prescriptions:

1. Current leased oil and gas acreage for Shepherd Site has No Surface Occupancy Constraint and remaining acreage has Controlled Surface Use.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire non-federal surface, minerals, and easement. No new ROWs in Shepherd Site. New ROWs to be placed in existing disturbance on remaining acreage. Coordinate with ROW holders on maintenance and use of ROWs.
5. Designate as Limited OHV area and close identified roads.
6. Designate as Class II VRM area.
7. Close to fuelwood cutting and sale.
8. Close to vegetation modification.
9. Apply limited/conditional wildfire suppression methods.
10. Continue current grazing permitting.
11. Restrict other surface disturbing activities to previously disturbed areas.
12. Enlarge the Chacra Mesa Complex ACEC.
13. Update and implement CRMP.

EAST SIDE RINCON

Site Description:

There are a total of 195 acres within the boundary of the East Side Rincon ACEC, of which 75 acres are public land acres (BLM) and 75 acres are federal mineral acres. The East Side Rincon Site ACEC is located on a narrow riverine terrace on the east side of the La Plata River. The river channel cuts into the east bank of the site, creating a steep-banked terrace edge which rises 45 to 100 meters above the floodplain. A deeply entrenched arroyo also bisects portions of the site. Cultural features are exposed in the banks of the arroyo in the east bank of the La Plata River.

The site contains evidence of an Archaic occupation, as well as Basketmaker and Pueblo components. The Basketmaker III-Pueblo I occupation appears the most expansive, including at least six pithouses, several storage cists and a trash midden.

The site was first recorded in 1935, with additional recordation in 1964 and complete documentation in 1983 and 1984. The latter work resulted in listing the site on the National Register of Historic Places. The site is significant because little is known about the Archaic and Basketmaker use of the La Plata Valley and it represents of the few Basketmaker villages documented in this area.

Management Goal:

The management goal is to protect cultural and resource values.

Management Prescriptions:

1. Original 100 leased oil and gas acres have No Surface Occupancy constraint and 95 other acres have Controlled Surface Use constraint.
2. All new leases have No Surface Occupancy constraint.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.
5. Acquire non-federal surface and easements.
6. New ROWs will be placed within existing ROW/easement disturbance. Coordinate with ROW/easement holders on maintenance and use of ROW/easements.
7. Designate as Limited OHV area and close identified roads.
8. Designate as Class II VRM area.
9. Close: fuel wood sale/cutting, grazing and vegetation modification.
10. Restrict other surface disturbing activities to previously disturbed areas.
11. Designate as East Side Rincon ACEC.
12. Continue implement CRMP.
13. Conduct Class III inventory.
14. Promote research.
15. Monitor condition of site.
16. Include in FFO Patrol and Surveillance Program.
17. Implement erosion control measures and conduct data recovery of threatened resources.

FARMER'S ARROYO

Site Description:

There are a total of 40 acres within the boundary of the Farmer's Arroyo ACEC, all of which are public land (BLM) and federal mineral acres.

The Farmer's Arroyo Site (40 acres) is located on a high cobble ridge looking out over the Animas River Valley. Badlands lie to the east and rolling mesas cut by arroyos and shallow drainages lie to the west. The site appears to have been an adobe structure. There is no rubble to indicate the presence of masonry or cobble walls and the artifact scatter is minimal, probably because of collection by hikers and ORV users. Aerial photography clearly shows a U-shaped structure indicated by changes in surface elevations and vegetative cover. It is estimated that the structure contains 12 to 16 ground floor rooms with a possible second story. The few ceramics remaining at the site date the occupation to the Pueblo III period, Mesa Verde phase. A very large kiva, probably used in conjunction with the adobe structure, is 400 feet to the southwest at the base of the ridge and a cobble walled pueblo with four rooms is located about a quarter mile further south. The adobe construction, topographic setting, and proximity to Aztec ruins make this site a unique and significant resource requiring special management attention.

Management Goal:

The management goal is to protect cultural resource values.

Management Prescriptions:

1. Continue No Surface Occupancy management constraint on current and new oil and gas leased acreage.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. No new ROWs will be issued. Coordinate with ROW holders on maintenance and use of ROWs.
5. Designate as Closed OHV Area and close identified roads.
6. Designate as Class II VRM area.
7. Close: fuel wood sale/cutting, vegetation modification and grazing.
8. Restrict other surface disturbing activities to previously disturbed areas.
9. Prepare and implement CRMP.
10. Conduct Class III inventory.

11. Conduct stabilization and maintenance.
12. Include in FFO Patrol and Surveillance Program.
13. Conduct cadastral survey.
14. Nominate to NRHP.
15. Promote research.

LA JARA

Site Description:

There are a total of 1,769 acres within the boundary of La Jara ACEC, of which 1,045 acres are public land acres (BLM) and 1,764 acres are federal mineral acres.

La Jara is a large Anasazi Pueblo I community with numerous pithouses, surface structures, great kivas, middens, and other associated features. During Pueblo I, there was extensive use of uplands in the Farmington area that were near major waterways, including the San Juan and Animas Rivers. Although most of the structures and other features are difficult to observe from the surface, large-block archaeological surveys have documented the extent and complexities of these communities. The communities may have been active for several hundred years. Archaeological evidence indicates that they were basically abandoned by early Pueblo II. Oil and gas development in the San Juan Basin may impair the undisturbed nature of La Jara. Projected in-field development will reduce the pristine areas and the distance of the cultural resources from disturbance. In addition, opening new areas to vehicle traffic may increase the frequency of illegal excavation and collection of cultural values. Consequently, management goals include the long-term preservation of cultural resources.

Management Goal:

Designation of La Jara as an ACEC will aid in providing proactive, long-term protection and preservation of the cultural and natural resources, which are necessary for the educational, cultural, heritage, architectural, historic and other values contained within the FFO.

Management Prescriptions:

1. Current and new leased oil and gas acreage under Controlled Surface Use constraint.
2. Close to all other forms of mineral entry.
3. Acquire non-federal surface and easement.
4. New ROWs will be placed within existing ROW corridors. Coordinate with ROW holders on maintenance and use of ROWs.
5. Designate as Limited OHV Area and close identified roads.
6. Designate as a Class II VRM Area.
7. Restrict surface disturbing activities to identified areas to minimize disturbance and impacts.
8. Designate La Jara ACEC.
9. Prepare and implement CRMP.
10. Complete Class III inventory.
11. Promote and continue research under Regional Research Design.
12. Include in FFO Patrol and Surveillance Program.

CHACOAN OUTLIERS

General Description

The most well known archaeological values of the American Southwest are the remains of the Anasazi culture. Between approximately A.D. 700 and 1150, the Chacoan Anasazi flourished, with Chaco Canyon serving as the social and religious center, followed by a shift north to the current Aztec area. During the 900s and 1000s, a series of structures similar to those in Chaco Canyon were constructed in and around the San Juan Basin. These sites are referred to as Chacoan Outliers.

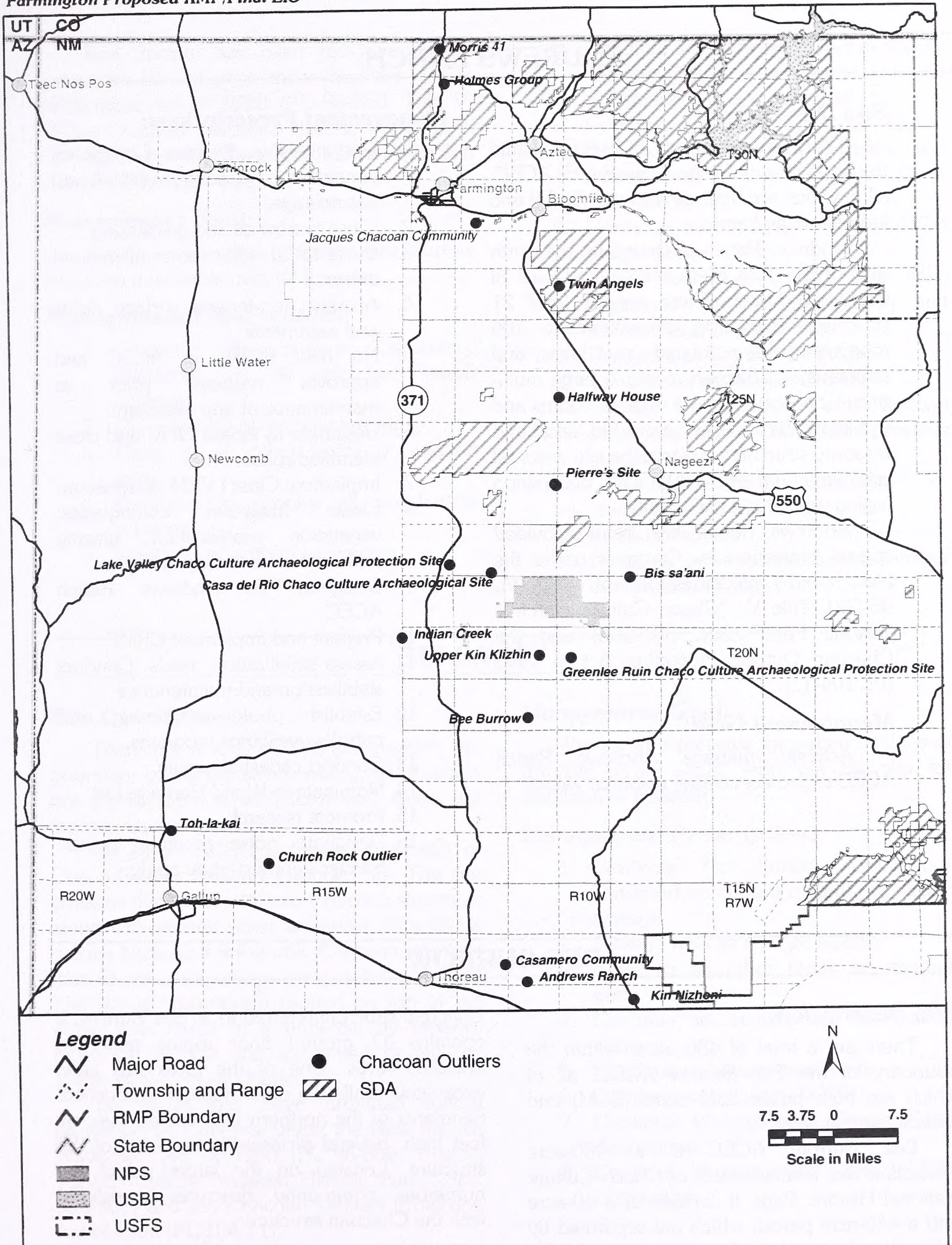
Many outliers were connected to Chaco Canyon, or to others, through a network of prehistoric roads. The Chacoan Outliers within the FFO area are scattered across the San Juan Basin and surrounding areas, from near the Colorado-New Mexico border south to Gallup, and from the edge of the Navajo Reservation east to Ambrosia Lake. The diversity in geographical location, and the function of these sites in the Chaco culture, appears to vary greatly.

Characteristics of Chacoan structures include pre-planned floor plans, core-and-veneer walls, and large, high-ceilinged rooms. Associated with the Chacoan structures are great kivas, extensive earthworks, and Chacoan roads.

The region was recognized internationally through the UNESCO designation in 1987 as a World Heritage locality (UNESCO 1987). Thirty-nine Chacoan Outliers have been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Over the past 50 or more years, oil and gas development of the San Juan Basin has resulted in thousands of well pads, thousands of miles of roads and pipelines, and other associated features. Within the past several years, wells have been drilled within or adjacent to the existing SDAs. Projected in-field development will reduce the pristine areas and the distance from the cultural values to disturbance. In addition, opening new areas to vehicle traffic may increase the frequency of illegal excavation and collection of cultural values. Current and proposed development also affect the experience of those visiting the Chacoan Outliers.

The ACECs included in this section and under the next category, Chacoan Roads, have been designated to ensure protection of these important cultural resources.



Map N-2: Chacoan Outliers

ANDREWS RANCH

Site Description:

There are a total of 640 acres within the boundary of the Andrews Ranch ACEC, all of which are both public land (BLM) and federal mineral acres.

Andrews Ranch is located on the north side of the Red Mesa Valley and east of Casamero Draw. There are at least 21 structures containing approximately 106 rooms and three isolated great kivas, and segments of Chacoan roads. A large multi-story Chacoan structure with 14 rooms and five kivas has also been recorded. Jacal and masonry structures indicate the site was well established by A.D. 800 with occupation lasting until about A.D. 1050.

Andrews Ranch has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Actively manage Andrews Ranch ACEC to protect cultural resource values.

Management Prescriptions:

1. Continue No Surface Occupancy constraint for existing leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire non-federal surface rights and easements.
5. No new ROWs in ACEC and approval required prior to maintenance of any easement.
6. Designate as closed OHV and close identified roads.
7. Implement Class I VRM designation.
8. Close: fuelwood cutting/sales, vegetation modification, grazing and surface disturbing activities.
9. Designate as Andrews Ranch ACEC.
10. Prepare and implement CRMP.
11. Assess stabilization needs. Conduct stabilization and maintenance.
12. Establish photo monitoring and patrol/surveillance programs.
13. Conduct cadastral survey.
14. Nominate to World Heritage List.
15. Promote research.
16. Designate noise receptor points. Stricter standards may apply.

BEE BURROW

Site Description:

There are a total of 480 acres within the boundary of the Bee Burrow ACEC, all of which are both public land acres (BLM) and federal mineral acres.

Bee Burrow ACEC is a 480-acre Protection Site located south of Chaco Culture National Historic Park. It consists of a 40-acre and a 440-acre parcel, which are separated by 0.75 miles. Located on the smaller parcel if the Chacoan structure referred to as Bee Burrow. It contains 11 ground floor rooms plus two enclosed kivas. One of the kivas has been excavated, while the other appears untouched. Segments of the northern wall extend over six feet high. Several pictographs are west of the structure. Located on the larger parcel are numerous community structures associated with the Chacoan structure.

Bee Burrow has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Continue to actively manage Bee Burrow ACEC as a valuable cultural resource.

Management Prescriptions:

1. Continue No Surface Occupancy constraint for oil and gas leased acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire all non-federal minerals.
5. Continue to acquire easements.
6. Continue with no new ROWs in ACEC. Approval is required prior to the maintenance of any easement.
7. Continue to implement the Closed OHV designation on 40 acres and limited designation on 440 acres. Close identified roads.
8. Continue to implement Class I VRM designation.
9. Close: fuelwood cutting and sale, vegetation modification, grazing and surface disturbing activities.
10. Designate as Bee Burrow ACEC.
11. Continue to implement CRMP
12. Conduct Class III cultural and Chacoan roads inventories. Consolidate previous research data.
13. Conduct stabilization maintenance
14. Nominate to World Heritage List
15. Promote research.
16. Designate noise receptor points. Stricter standards may apply.

BIS SA'ANI

Site Description:

There are a total of 188 acres within the boundary of the Bis sa'ani ACEC, all of which are public land acres (BLM) and none are federal mineral acres.

Bis sa'ani ACEC is located northeast of Chaco Culture National Historic Park. This site contains the remains of two Chacoan structures along with several other structures. This site is unique because it is the only Chacoan structure located on a clay ridge along a flat drainage. The site is precariously located on top of the ridge, with much of it undercut by erosion. Much of the site was excavated during the 1980s by the Navajo Nation.

Bis sa'ani has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Protect and preserve the cultural values of the Bis Sa'ani ACEC and use the site for stabilization research.

Management Prescriptions:

1. Continue No Surface Occupancy constraint on current oil and gas leased acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire all non-federal minerals.
5. Continue to acquire easements.
6. Continue with no new ROWs.
7. Continue to implement Closed OHV designation.
8. Continue to implement Class I VRM designation.

9. Close: fuelwood cutting/sale, vegetation modification, grazing and surface disturbing activities.
10. Designate as Bis sa'ani ACEC.
11. Continue to implement the CRMP.
12. Prepare HABS documentation.
13. Conduct Chacoan roads inventory and consolidate previous research data.
14. Solicit stabilization proposals. Conduct stabilization and maintenance.
15. Continue photo monitoring and patrol/surveillance programs.
16. Conduct cadastral survey and fence boundary.
17. Nominate to NRHP and World Heritage List.
18. Promote research.
19. Designate noise receptor points. Stricter standards may apply.

CASA DEL RIO

Site Description:

There are a total of 42 acres within the boundary of Casa Del Rio ACEC, of which none is public land or federal mineral acres. Chacoan outliers are Anasazi sites dating primarily to Pueblo II A.D. 900-1100, and into early Pueblo III. Some show earlier components, while others have later Mesa Verde occupations. Characteristics of Chacoan structures include pre-planned floor plans, core-and-veneer walls, and large, high-ceilinged rooms. Associated with the Chacoan structures are great kivas, extensive earthworks and Chacoan roads. Chacoan outliers have been identified as one of the key archaeological values managed by the BLM.

Cas del Rio has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Casa Del Rio ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. When lands and minerals are acquired, close to new oil and gas leasing and all other forms of mineral entry.
2. Designate as an ACEC.

CASAMERO COMMUNITY

Site Description:

There are a total of 153 acres within the boundary of the Casamero Community ACEC, all of which are both public land acres (BLM) and federal mineral acres.

The Casamero Community includes a large multi-story pueblo with 20 ground-floor rooms and one kiva. A second kiva may be located in the plaza associated with this structure. A great kiva is located 200 feet south of the pueblo and 24 additional structures have been recorded in the surrounding area. The site was excavated in 1966 and 1967 and stabilized by the BLM in 1975, 1976 and 1986. The community was established around A.D. 900 and abandoned by A.D. 1125. The community is situated at the base of Ojo Tecolote Mesa and overlooks Casamero Draw.

Casamero Community has been provided special protection by Congress under the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Casamero Community ACEC to protect cultural and recreational values.

Management Prescriptions:

1. Continue No Surface Occupancy constraints on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. No new ROWs in ACEC. Approval required prior to maintenance of any existing ROWs.
5. Continue to implement limited OHV designation.
6. Continue to implement Class I VRM designation.
7. Close: fuelwood cutting, vegetation modification, grazing and surface disturbing activities.
8. Designate as Casamero Community ACEC.
9. Update and implement CRMP.
10. Prepare HABS documentation.
11. Conduct Chacoan roads inventory and consolidate previous research data.
12. Conduct stabilization maintenance.
13. Continue photo monitoring and patrol/surveillance programs.
14. Nominate to NRHP.
15. Continue to manage for public visitation.
16. Designate noise receptor points. Stricter standards may apply.

CHURCH ROCK OUTLIER

Site Description:

There are a total of 160 acres within the boundary of the Church Rock Outlier ACEC, all of which are public land acres (BLM) and all of which are federal mineral acres. Little is known about the Church Rock Outlier in the FFO. It has the least special designations. Although a Class III cultural inventory has yet to be completed, there appears to be a large, completely collapsed Chacoan structure, which was probably one story high with rooms surrounding three sides of the plaza. There might be standing walls underneath the rubble. There are also several smaller sites and extensive earth works, including segments of prehistoric roads.

Management Goal:

Manage the Church Rock Outlier ACEC for protection and preservation of cultural values.

Management Prescriptions:

1. No Surface Occupancy management constraint on current leased oil and gas acreage.
2. Close to new oil and gas leasing.Close to all other forms of mineral entry.
3. New ROWs restricted to disturbed country road bed. Approval required prior to maintenance of any existing ROWs.
4. Continue to implement limited OHV designation and close identified roads.
5. Designate as a Class II VRM area.
6. Close: fuelwood cutting and sale, vegetation modification, grazing, and surface disturbing activities.
7. Designate Church Rock Outlier ACEC.
8. Prepare and implement CRMP.
9. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
10. Prepare HABS documentation. Conduct detailed surface artifact analysis and limited testing.
11. Establish photo monitoring and patrol/surveillance programs.
12. Conduct cadastral survey and fence boundary.
13. Nominate to NRHP and World Heritage List.

14. Prepare documentation for inclusion as Chaco Culture Archaeological Protection Site.
15. Promote research.
16. Designate noise receptor points.

GREENLEE

Site Description:

There are a total of 60 acres within the boundary of the Greenlee ACEC, none of which is public land or federal mineral acres. Chacoan outliers are Anasazi sites dating primarily to Pueblo II, A.D. 900-1100, and into early Pueblo III. Some show earlier components, while others have later Mesa Verde occupations. Characteristics of Chacoan structures included preplanned floor plans, core-and-veneer walls, and large, high-ceilinged rooms. Associate with the Chacoan structures are great kivas, extensive earthworks, and Chacoan roads.

Greenlee ACEC has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Greenlee ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. When lands and minerals are acquired, close to new oil and gas leasing all other forms of mineral entry.
2. Designate as an ACEC.

HALFWAY HOUSE

Site Description:

There are a total of 40 acres within the boundary of the Halfway House ACEC, all of which are public land acres (BLM) and federal mineral acres. Halfway House is a one-story, rectangular masonry structure estimated to contain 12 rooms. It is located on a low rise near Gallegos Wash. Segments of what may have been a major Chacoan road have been identified on the east and south sides of the structure. Core and veneer masonry and ceramics on the site indicate an occupation between A.D. 975 and A.D. 1150.

Halfway House has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage Halfway House ACEC to protect its cultural resource value.

Management Prescriptions:

1. Continue No Surface Occupancy management constraint for leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire available easements.
5. No new ROWs. Approval required prior to maintenance of any existing ROWs.
6. Continue to implement limited OHV designation and close identified roads.
7. Designate as a Class I VRM area.
8. Close: fuelwood cutting, vegetation modification, grazing and surface disturbing activities.
9. Continue designation of Halfway House ACEC.
10. Update and implement CRMP.
11. Conduct Chacoan roads inventory.
12. Consolidate previous research data.

13. Prepare HABS documentation. Backfill vandalized areas.
14. Promote research.
15. Designate noise receptor points.

HOLMES GROUP

Site Description:

There are a total of 94 acres (7 acres BLM surface, 58 acres Federal minerals) within the boundary of the Holmes Group ACEC, an archaeological community located 15 miles north of Farmington, NM. At one time, this community had National Landmark Status, but its status was revoked because of the extensive vandalism that has taken place. The large outlier community contains the remains of at least 30 small houses, one L-shaped Chacoan structure with a plaza open to the southeast, a second large structure thought to be Chacoan because of its size, and one isolated great kiva. The small houses, Chacoan structures and associated refuse mounds are in close proximity with cultural material covering most of the ACEC. The Holmes Group includes approximately 250 rooms and 60 kivas. Ceramics on the site range from Late Pueblo II through Late Pueblo III, indicating occupation and use from about A.D. 975 to A.D. 1300.

Management Goal:

Manage the Holmes Group to protect its cultural resource value.

Management Prescriptions:

1. Continue No Surface Occupancy management constraint on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire all non-federal minerals.
5. Continue to acquire non-federal surface rights and easements.
6. No new ROWs in ACEC. Approval required prior to maintenance of any existing ROWs.
7. Continue to implement limited OHV designation.
8. Designate as Class II VRM area.
9. Close: fuelwood cutting and sale, vegetation modification, grazing and surface disturbing activities.
10. Expand and designate as Holmes Group ACEC.
11. Prepare and implement CRMP.
12. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
13. Backfill and stabilize.
14. Conduct cadastral survey.
15. Include in FFO patrol/surveillance program.
16. Resolve occupancy issues.
17. Promote research.
18. Designate noise receptor points.

INDIAN CREEK

Site Description:

There are a total of 99 acres within the boundary of the Indian Creek ACEC, of which 95 acres are public land acres (BLM) and 95 acres are federal mineral acres.

Indian Creek ACEC is located west of the Chaco Culture National Historic Park. It contains two Chacoan structures plus numerous smaller structures. The largest is Casa Cielo, located on top of a mesa point. It contains 12 ground story rooms plus an enclosed kiva. Casa Abajo is located to the west on a gently south facing slope. This structure contains nine rooms plus a large enclosed plaza on the southeast side. Casa Abajo predates Casa Cielo.

Indian Creek has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the protection and preservation of Indian Creek ACEC as a valuable cultural resource.

Management Prescriptions:

1. Close to new oil and gas leasing.
2. Close to all other forms of mineral entry.
3. Continue to acquire easements.
4. No new ROWs.
5. Continue to implement Closed OHV designation.
6. Continue to implement Class I VRM designation.
7. Close: fuelwood cutting and sale, vegetation modification, grazing and surface disturbing activities.
8. Continue to implement CRMP.
9. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
10. Conduct stabilization maintenance.
11. Continue photo monitoring and patrol/surveillance programs.
12. Nominate to NRHP and World Heritage List.
13. Promote research.
14. Designate noise receptor points. Stricter standards may apply.

JACQUES CHACOAN COMMUNITY

Site Description:

There are a total of 24 acres within the boundary of the Jacques Chacoan Community ACEC, of which none is public land acres (BLM) and 24 acres is federal mineral acres.

Jacques Site is located on an alluvial terrace south of the San Juan River. The site includes a one story, L-shaped Chacoan structure with an estimated 25 rooms, an open plaza, and a kiva. The large rooms and the exposed masonry in the walls reveal Chacoan building attributes and large rooms. At least three smaller structures are located nearby. The occupation appears to have occurred between A.D. 1075 to 1200.

Jacques Chacoan Community has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Jacques Site to preserve and protect its cultural resource value.

Management Prescriptions:

1. No Surface Occupancy management constraint on current oil and gas leases.
2. No Surface Occupancy management stipulation on new oil an gas acreage.
3. Close to all other forms of mineral entry.
4. Acquire 240 non-federal surface acres and easement.
5. No new ROWs issued. Approval required prior to maintenance of any existing ROWs.
6. Designate as closed OHV area.
7. Designate as Class I VRM area.
8. Close: wood cutting and sale, vegetation modification, grazing and surface disturbing activities.
9. Designate as Jacques Chacoan Community ACEC.
10. Acquire Chaco Culture Archaeological Protection Site.
11. Prepare and implement CRMP.
12. Implement protection and preservation measures.

13. Enter into New Cooperative Agreement with owners of other portions of Jacques Community.
14. Acquire surrounding portions of Chacoan community and include in ACEC.
15. Designate noise receptor points. Stricter standards may apply.

KIN NIZHONI

Site Description:

There are a total of 781 acres within the boundary of the Kin Nizhoni ACEC, of which 526 acres are public land areas (BLM) and 776 acres are federal mineral acres.

The Kin Nizhoni Community is located southeast of Ambrosia Lake. The community consists of 88 sites containing 104 structures over 30 rooms. The community clusters around a low mesa and is surrounded by marshlands. The two major structures are Kin Nizhoni, a rectangular ruin containing 14 rooms and two kivas, and Lower Kin Nizhoni, which contains three rooms, a kiva, and an enclosed plaza. It is thought that Kin Nizhoni and Lower Kin Nizhoni were linked by a roadway and that Kin Nizhoni was the terminus of a major Chacoan roadway. The community appears to have been occupied between A.D. 950 and A.D. 1100.

Kin Nizhoni has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the protection and preservation of Kin Nizhoni as a valuable cultural resource.

Management Prescriptions:

1. Continue No Surface Occupancy management constraints on current leased oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Continue to acquire non-federal surface rights and easements.
4. No new ROWs. Approval required prior to maintenance of any existing ROWs.
5. Designate as Closed OHV area.
6. Continue with Class I VRM designation.
7. Close: fuelwood cutting, vegetation modification, grazing and surface disturbing activities.
8. Designate as Kin Nizhoni ACEC.
9. Update and implement CRMP.
10. Complete Class III and Chacoan roads inventories. Consolidate previous research data.
11. Conduct stabilization maintenance.
12. Continue photo monitoring and patrol/surveillance programs.
13. Complete NRHP nomination.
14. Promote research.
15. Designate noise receptor points. Stricter standards may apply.

LAKE VALLEY

Site Description:

There are a total of 28 acres within the boundary of the Lake Valley ACEC, all of which are federal mineral acres with no public land acres.

Lake Valley has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Lake Valley ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. No Surface Occupancy constraint on existing leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.

MORRIS 41

Site Description:

There are a total of 82 acres within the boundary of the Morris 41 ACEC, all of which are public land and federal mineral acres.

Morris 41 contains one of the most extensive Anasazi communities in northwest New Mexico. It was probably continually occupied from Basketmaker III through most of Pueblo III. The most spectacular occupation was the Chacoan Pueblo II period when the Chacoan structure and landscape architecture were constructed. The Chacoan structure may have been three stories high with a tower kiva along the northern side and a large kiva at the southwest corner. A large depression south of the structure may be the great kiva. Several of the sites were excavated by Earl Morris during the first half of the 20th century. The site was vandalized, including portions of the Chacoan structure, during the late 1970s and early 1980s.

Morris 41 has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Morris 41 ACEC to protect and preserve its cultural and educational (interpretation) resource value.

Management Prescriptions:

1. Continue No Surface Occupancy management constraint on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire easements.
5. Continue with no new ROWs.
6. Continue to implement Closed OHV designation.
7. Continue to implement Class I VRM designation.
8. Close: fuelwood cutting/sale, vegetation modification, grazing and surface disturbing activities.
9. Continue designation as Morris 41 ACEC.
10. Prepare and implement CRMP.
11. Conduct Class III and Chacoan roads inventories (complete archaeological site documentation). Consolidate previous research data.
12. Prepare HABS documentation. Conduct stabilization and maintenance.
13. Establish photo monitoring and patrol/surveillance programs.
14. Conduct cadastral survey.
15. Nominate to World Heritage List.
16. Promote research.
17. Coordinate with public and implement for education and interpretation.
18. Designate noise receptor points. Stricter standards may apply.

PIERRE'S SITE

Site Description:

There are a total of 440 acres within the boundary of the Pierre's Site ACEC, all of which are both public land (BLM) and federal mineral acres.

The ACEC includes three Chacoan structures, nine small structures, and nine special use areas, all dating from A.D. 900-1150. Two of the Chacoan structures are built on top of a prominent butte, while the third and largest is built on alluvial deposits. The prehistoric "Great North Road" passes through the site adjacent to the largest structure. A total of 45 rooms are six kivas have been identified in these Chacoan structures, while the smaller sites each include 5 to 10 rooms with an associated kiva.

Pierre's Site has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Pierre Site ACEC to protect and preserve its cultural resource value and enhance its interpretive use for visitors

Management Prescriptions:

1. Continue No Surface Occupancy management constraint on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire non-federal surface easements.
5. No new ROWs.
6. Designate as Closed OHV Area.
7. Continue to implement Class I VRM designation.
8. Close: fuelwood cutting and sale, vegetation modification, grazing and surface disturbing activities.
9. Continue designation as Pierre's Site ACEC.
10. Update and implement CRMP.
11. Complete Class III and Chacoan Roads inventories. Consolidate previous research data.
12. Stabilize and backfill areas. Conduct stabilization maintenance.
13. Continue photo monitoring and patrol/surveillance programs.
14. Complete NRHP nomination.
15. Promote research.
16. Designate noise receptor points. Stricter standards may apply.

TOH-LA-KAI

Site Description:

There are a total of 10 acres within the boundary of Toh-la-kai ACEC, all of which are public land (BLM) but no federal mineral acres.

Toh-la-kai ACEC is located in the southwest portion of the San Juan Basin, on the southern edge of Tohachi Flats. The Chacoan structure was three stories high. It is currently reduced to a rubble mound. The great kiva and an enclosed plaza are along the northern side of the Chacoan structure. An earlier Basketmaker III and possibly Pueblo I component is also in the parcel.

Toh-la-kai has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Toh-la-kai ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. Continue to close oil and gas leased acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Continue to acquire easements.
5. No new ROWs. Approval required prior to maintenance of existing easement.
6. Continue to implement Closed OHV designation and close identified roads.
7. Continue to implement Class I VRM designation.
8. Close: fuelwood cutting/sale, vegetation modification, grazing and surface disturbing activities.
9. Continue designation as Toh-la-kai ACEC.
10. Continue to implement CRMP.
11. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
12. Prepare HABS documentation. Conduct stabilization and maintenance.
13. Continue photo monitoring and patrol/surveillance program.
14. Nominate to NRHP and World Heritage List.
15. Promote research.
16. Designate noise receptor points. Stricter standards may apply.

TWIN ANGELS

Site Description:

There are a total of 358 acres within the boundary of Twin Angels ACEC, all of which are both public land (BLM) and federal mineral acres.

Twin Angels consists of four separate structures located on a steep cliff edge overlooking Kutz Canyon. The largest structure is a one story rectangular block room containing 17 to 19 rooms and two kivas. Immediately to the southwest is a U-shaped rubble mound, which may be a shrine. A low square rubble mound is located northwest of the larger block room. The core and veneer masonry and ceramics found at the site indicate an occupation between A.D. 1000 and A.D. 1250.

Twin Angels has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the site to protect its cultural resource value.

Management Prescriptions:

1. Apply No Surface Occupancy management constraint to oil and gas leased acreage.
2. Close to all other forms of mineral entry.
3. Acquire non-federal surface rights and easements.
4. No new ROWs. Approval required prior to maintenance of any existing ROW.
5. Designate as Limited OHV area and close identified roads.
6. Designate expanded acreage as Class I VRM Area.
7. Close: fuelwood cutting/sale, vegetation modification, grazing and surface disturbing activities.
8. Enlarge Twin Angels ACEC.
9. Update and implement CRMP.
10. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
11. Conduct stabilization maintenance.
12. Continue photo monitoring and patrol/surveillance programs.
13. Update/amend NRHP and World Heritage List boundaries.

14. Promote research.

15. Designate noise receptor points. Stricter standards may apply.

UPPER KIN KLIZHIN

Site Description:

There are a total of 60 acres within the boundary of the Upper Kin Klizhin ACEC, all of which are both public land (BLM) and federal mineral acres.

Upper Kin Klizhin is located south of Chaco Culture National Historic Park along the Chacoan South Road. The prehistoric road is identified as passing to both the east and west of the Chacoan structure. This structure contains approximately 19 ground floor rooms, an enclosed kiva and a possible tower kiva along the northern side. Several small sites have been identified within the protection area, but most of the community may be outside of the parcel on Navajo Nation lands.

Upper Kin Klizhin has been provided special protection by Congress under the New Mexico Wilderness Act of 1980 (PL 96-550, Title V, "Chaco Culture National Historic Park," Sec. 501-508) and the Chacoan Outliers Protection Act of 1995 (PL 104-11).

Management Goal:

Manage the Upper Kin Klizhin ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. Close to new oil and gas leasing.
2. Close to all other forms of mineral entry.
3. Continue to acquire easements.
4. Continue with no new ROWs.
5. Continue to implement Close OHV designation.
6. Continue to implement Class I VRM designation.
7. Close: fuelwood cutting/sale, vegetation modification, grazing and surface disturbing activities.
8. Continue with designation of Upper Kin Klizhin ACEC.
9. Continue to implement CRMP.
10. Conduct Class III and Chacoan roads inventories. Consolidate previous research data.
11. Conduct stabilization maintenance.
12. Continue photo monitoring and patrol/surveillance programs.
13. Nominate to World Heritage List.
14. Promote research.
15. Designate noise receptor points. Stricter standards may apply.

CHACOAN ROADS

General Description

Chacoan roads were constructed by the Chacoan Anasazi primarily during the Pueblo II period (A.D. 900-1100). They were first identified within the immediate area of Chaco Canyon, but then found to radiate out as networks in the San Juan Basin and even outside the Basin towards the Rio Grande. The roads served to link the outliers with the Chacoan great houses and communities in the central hub in Chaco Canyon.

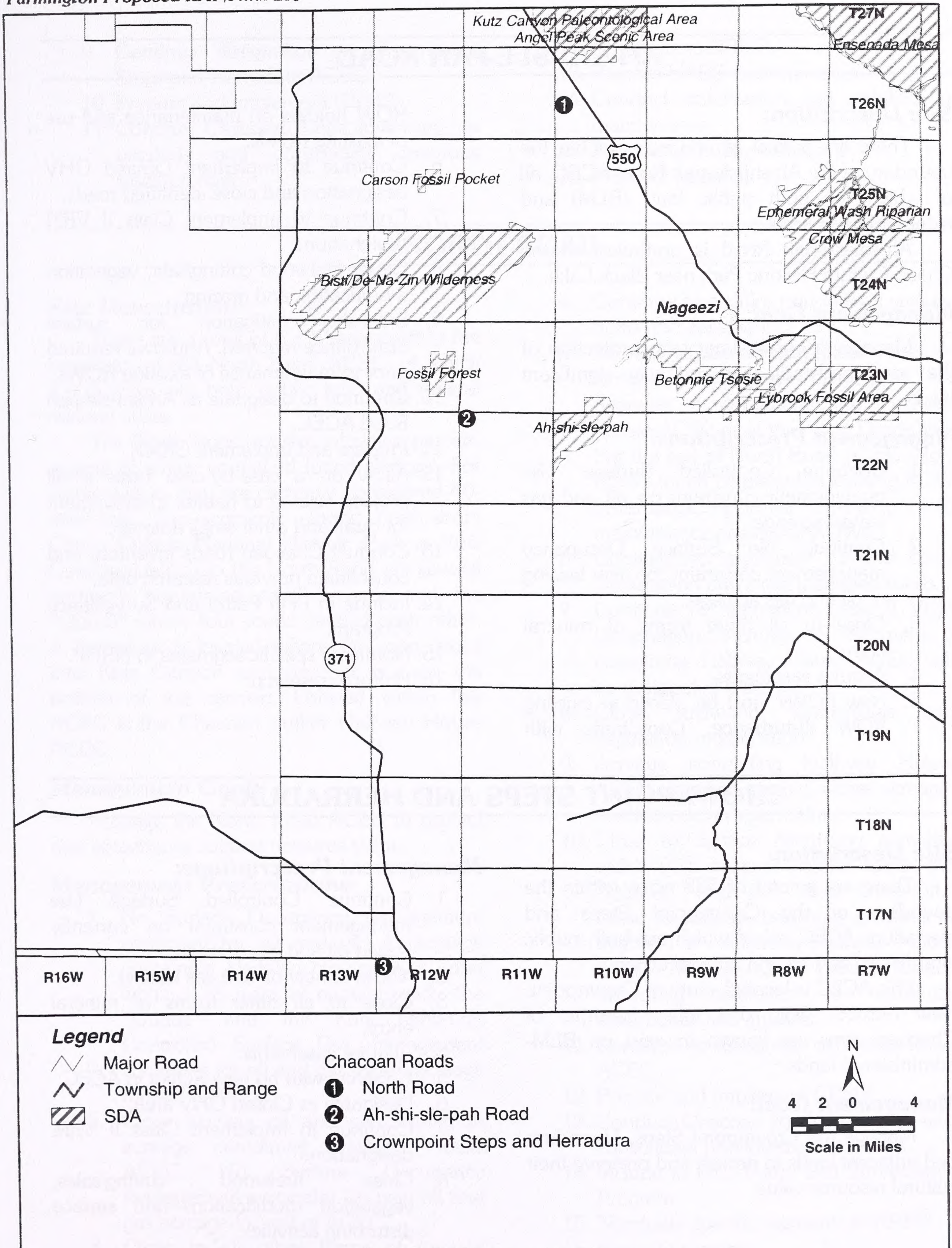
The Chacoan roads are usually approximately 30 feet wide and very straight. If an obstacle such as a cliff or sand dune was located along the alignment, stairs were carved into the cliff or a trench was dug through the dune.

Chacoan roads are often found associated with Chacoan Outliers. In addition to the major roads, a number of Chacoan roads connect specific outliers to each other, lead to specific places, such as fields, or are involved in earthworks around Chacoan structures. A number of specialized sites are found along the roads, including herraduras (low walls) and cairns.

Several theories have been presented on the purpose, function, and use of the Chacoan Roads. In the 1970s and early 1980s, it was theorized that the roads were used for the exchange of goods (primarily food, pottery, and turquoise) across the Chacoan sphere of influence. Recent theories emphasize ceremonial rather than social/economic functions. Several authors have discussed the orientation of the roads towards specific topographical features, many outside of the San Juan Basin. Others have suggested that the roads are only one aspect of a culturally modified landscape, which also included earthen platforms and various other raised and lowered ground surfaces.

The Chacoan roads are an integral part of the Chacoan Anasazi culture. Whether symbolically and/or actually, the roads tied the Chacoan world together. The roads and structures constructed by the Chacoan Anasazi attest to their architecture and engineering abilities and complex social systems.

The following ACECs have been designated to ensure that these important features of landscape architecture are protected.



Map N-3: Chacoan Roads

AH-SHI-SLE-PAH ROAD

Site Description:

There are a total of 663 acres within the boundary of the Ah-shi-sle-pah Road ACEC, all of which are both public land (BLM) and federal mineral acres.

Ah-shi-sle-pah Road is northwest of the Chaco Culture Historic Park near Black Lake.

Management Goal:

Manage to ensure long term protection of the road and adjacent culturally significant lands.

Management Prescriptions:

1. Continue Controlled Surface Use management constraint on oil and gas leased acreage.
2. Continue No Surface Occupancy management constraint for new leasing of oil and gas acreage.
3. Close to all other forms of mineral entry.
4. Acquire easements.
5. New ROWs must be placed in existing ROW disturbance. Coordinate with ROW holders on maintenance and use of existing ROWs.
6. Continue to implement Limited OHV designation and close identified roads.
7. Continue to implement Class II VRM designation.
8. Close: fuelwood cutting/sale, vegetation modification and grazing.
9. Extensive mitigation for surface disturbance required. Approval required prior to maintenance of existing ROWs.
10. Continue to designate as Ah-shi-sle-pah Road ACEC.
11. Prepare and implement CRMP.
12. Allow on a case-by-case basis small projects related to habitat improvement for quail and other small animals.
13. Conduct Chacoan roads inventory and consolidate previous research data.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate specific segments to NRHP.
16. Promote research.

CROWNPOINT STEPS AND HERRADURA

Site Description:

There are a total of 588 acres within the boundary of the Crownpoint Steps and Herradura ACEC, all of which are both public land (BLM) and federal mineral acres.

This ACEC is located south of Crownpoint, New Mexico. Only one other example of Chacoan steps are known to exist on BLM-administered lands.

Management Goal:

Manage the Crownpoint Steps, Herradura and adjacent lands to protect and preserve their cultural resource value.

Management Prescriptions:

1. Continue Controlled Surface Use management constraint on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire easements.
5. Continue with no new ROWs in ACEC.
6. Designate as Closed OHV area.
7. Continue to implement Class II VRM designation.
8. Close: fuelwood cutting/sales, vegetation modification, and surface disturbing activities.

9. Continue designation as Crownpoint Steps and Herradura ACEC.
10. Prepare and implement CRMP.
11. Conduct Chacoan roads inventory, as needed, and consolidate previous research data.
12. Nominate to NRHP.
13. Prepare HABS documentation.
14. Conduct stabilization and stabilization maintenance.
15. Prepare for public visitation.
16. Promote research.

NORTH ROAD

Site Description:

There are a total of 6,177 acres within the boundary of the North Road ACEC, of which 5,005 acres are both public land and federal mineral acres.

The North Road consists of seven parcels, several of which contained lotted sections. For convenience, they are currently considered 40-acre lots. The segments extend north from Chaco Culture National Historic Park to Kutz Canyon. Unique to the North Road are several segments containing parallel roads and the "Quads" where four roads parallel each other. A herradura is located where the road drops into Kutz Canyon and another is near the bottom of the canyon. Located within this ACEC is the Chacoan outlier Halfway House ACEC.

Management Goal:

Manage the North Road ACEC to protect and preserve its cultural resource value.

Management Prescriptions:

1. No Surface Occupancy management constraint for oil and gas in acreage containing Halfway House ACEC and within 0.25 miles of parallel roads, the "Quads" and the Kutz Drop-Off. Controlled Surface Use management constraint for oil and gas leased acreage for rest of ACEC.
2. Close to new oil and gas leasing in acreage containing Halfway House ACEC. No Surface Occupancy management constraint on new oil and gas acreage for rest of ACEC.
3. Close to all other forms of mineral entry.
4. Continue to acquire non-federal surface rights and easements.
5. No new ROWs across parallel roads or within 0.25 miles of "the Quads," in Segment 6 containing the Halfway House ACEC or at the "Kutz Drop-Off." For the rest of North Road ACEC: New ROWs much be placed in existing ROW disturbance. Approval required prior to maintenance of existing ROWs.
6. Continue to implement Limited OHV Designation and close identified roads.
7. Continue to implement Class II VRM Designation. Acreage of Segment 6 containing Halfway House ACEC will be designated Class I.
8. Close: fuelwood cutting/sales and vegetation modification.
9. Acreage containing Halfway House ACEC closed to grazing. Other acreage, continue current permitting.
10. Close to surface disturbing activities within 0.25 miles of parallel roads, the "Quads," and the "Kutz Drop-Off." Close to surface disturbing activities in Segment 6 containing Halfway House ACEC. Rest of ACEC: Restrict surface disturbing activities to minimize disturbance and impacts.
11. Continue to designate as North Road ACEC.
12. Prepare and implement CRMP
13. Conduct Chacoan roads inventory and consolidate previous research data.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate specific segments to NRHP.
16. Promote research.

17. Manage specific segments/features for public visitation.
18. Designate noise receptor points at defined sites in: Segment 1, Segment 2, Segment 6 (including Halfway House ACEC), and Segment 7 in Angel Peak RA. Stricter standards may apply in Segment 6.

EARLY NAVAJO DEFENSIVE SITES AND COMMUNITIES

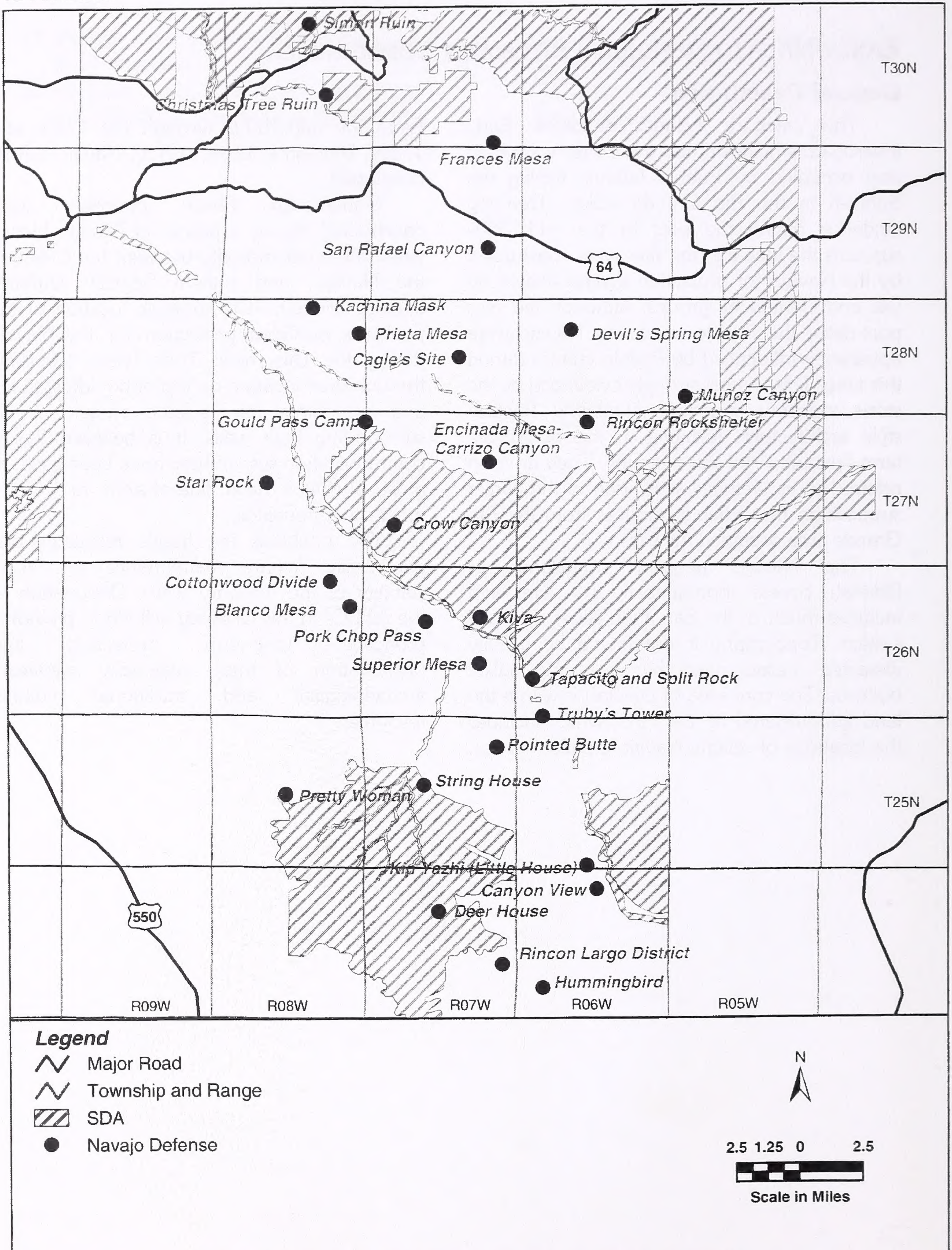
General Description

This category includes pueblitos. Early investigators believed that these sites were built and occupied by Pueblo Indians fleeing the Spanish in the Rio Grande valley. Tree-ring evidence dating the sites to the mid-1700s supports the idea that the sites were constructed by the Navajo for protection against attacks by Ute and Comanche groups. Although the sites post-dated the Pueblo revolt, the Navajo were apparently influenced by Pueblo culture during this time. This is most strongly evidenced by the stone masonry structures exhibiting Pueblo-style architecture, resulting in the descriptive term "pueblito" for this site type. They are also referred to as "refugee sites" due to the earlier supposition that Pueblo refugees from the Rio Grande area occupied the sites.

The Navajo people's homeland, or Dinétah, covers approximately 1.5 acres and includes much of the San Juan River drainage system. Topography is dominated by heavily dissected mesas, mesa benches, and valley bottoms. The core area of Dinétah is within the land administered by the FFO, which includes the locations of several Navajo creation stories. From the mid-1500s through the 1770s and 1780s, Dinétah is where current Navajo culture developed.

Gobernador Phase pueblitos were constructed during a period in Navajo history when there was hostility between the Utes and the Navajo, and several Spanish entradas entered Dinétah. The strategic location of the pueblitos provided protection for the Navajo during the Ute raids. They were defensible through their location on top of boulders, at the end of points, on isolated ridges, or by surrounding high walls. It is believed that a communication system may have been used, as most pueblitos have line-of-sight to one or more other pueblitos.

The pueblitos are fragile resources that continually require maintenance to ensure stability of the masonry walls. Designation of the ACECs in this category will aid in providing proactive, long-term protection and preservation of these regionally significant archaeological and traditional cultural resources.



Map N-4: Early Navajo Defensive Sites and Communities

ADAMS CANYON

Site Description:

There are a total of 122 acres within the boundary of the Adams Canyon ACEC, of which 120 acres are public land (BLM) and 122 acres contain federal minerals. Adams Canyon Site is located on the edge of the cliff forming the west side of Adams Canyon. The site commands a view down Adams Canyon and across Carrizo Canyon to Gomez Point Ruin. The site a Navajo refugee site, which includes a three-room pueblito, a forked-stick Hogan, a stone-based Hogan, a burned rock pile, and a trash deposit. Anasazi rock art panels are located on the cliff wall below the site.

Management Goal:

The management goal for Adams Canyon will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under no surface occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs will be issued. Coordinate with ROW holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Designate as VRM Class II Area.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting on grazing.
10. Restrict surface disturbing activities to identified areas to minimize disturbance and impacts.
11. Enlarge boundaries and designate as Adams Canyon ACEC.
12. Update and implement CRMP.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.
16. Prepare HABS documentation. Conduct stabilization and maintenance.

BLANCO MESA

Site Description:

There are a total of 730 acres within the boundary of the Blanco Mesa ACEC, of which 728 acres are public land (BLM and USBR) and 730 acres contain federal minerals. Blanco Mesa includes the McKean Pueblito, which is located on top of an isolated butte. The pueblito contains one roofed room and the remains of up to 10 additional rooms. Below the pueblito, to the south and east, are remains of fork-sticked hogans, sweat lodges, pictographs, and structures with slab-lined hearths.

Management Goal:

The management goal for Blanco Mesa will be long-term protection and preservation of the cultural and natural resources.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under no surface occupancy constraints for existing leases.
2. Close to all other forms of mineral entry.
3. Acquire easement.

4. Land ownership not available for disposal.
5. No new ROWs will be issued.
6. Designate Closed OHV Area.
7. Designate as VRM Class II Area.
8. Close fuelwood cutting and sale and vegetation modification.
9. Continue current permitting on grazing.
10. Close to surface disturbing activities.
11. Enlarge boundaries of existing ACEC.
12. Update and implement CRMP.
13. Conduct Class III and ethnographic inventories.
14. Prepare HABS documentation. Conduct stabilization and maintenance.
15. Include in FFO Patrol and Surveillance Program.
16. Nominate to NRHP.
17. Promote research.

CAGLE'S SITE

Site Description:

There are a total of 44 acres within the boundary of the Cagle's Site ACEC, all of which are public land (BLM) and all of which contain federal minerals. Cagle's Site is in a small corner of a bench of Delgadita Mesa and sits on an isolated boulder. The pueblito contains either two rooms or one room with an entry passage.

Management Goal:

The management goal for Cagle's Site will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under no surface occupancy constraints.
2. Close to all other forms of mineral entry.
3. Close to fuel wood sale/cutting.
4. Withdraw from land sale/entry/exchange and from other land laws.
5. Acquire easement.
6. New ROWs will be placed within existing ROW disturbance. Coordinate with ROW holders on maintenance and use of existing ROWs.
7. Implement Limited OHV designation and close identified roads.
8. Designate as VRM Class II Area.
9. Close to vegetation modification.
10. Continue current permitting for grazing.
11. Restrict surface disturbing activities to identified areas to minimize disturbance and impacts.
12. Designate as Cagle's Site ACEC.
13. Update and implement CRMP.
14. Prepare HABS documentation. Conduct stabilization and maintenance.
15. Include in FFO Patrol and Surveillance Program.
16. Conduct Class III and ethnographic inventories.
17. Promote research.
18. Designate noise receptor points.

CANYON VIEW RUIN

Site Description:

There are a total of 40 acres within the Canyon View Ruin ACEC, all of which are public land (BLM) and all of which contain federal minerals. Canyon View Ruin contains a two room pueblito with a third room added on as an entry. This structure sits on an elevated sandstone outcrop and has an excellent view up and down Largo Canyon as well as up Rincon Largo. The intact walls stand up to 6 ft. in height and one room has intact roof elements. Two hogans and two trash middens are associated with the pueblito and are located underneath the rubble at the base of the outcrop.

Management Goal:

The management goal for Canyon View Ruin will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Withdraw land sale/entry/exchange and from other land laws.
4. Acquire easement.
5. No new ROWs will be issued.
6. Designate Closed OHV Area.
7. Designate as VRM Class II Area.
8. Close to fuel wood sale/cutting, vegetation modification, and surface disturbing activities.
9. Withdraw grazing.
10. Designate as Canyon View ACEC.
11. Update and implement CRMP.
12. Conduct Class III and ethnographic inventories.
13. Prepare HABS documentation. Conduct stabilization and maintenance.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.

CHRISTMAS TREE RUIN

Site Description:

There are a total of 122 acres within the boundary of the Christmas Tree Ruin ACEC, of which 120 acres are public land (BLM) and 122 acres contain federal minerals. Christmas Tree Ruin differs from most Navajo Refugee sites in that it is a single large room in a rock shelter, rather than a freestanding pueblo. In the 1970s, Christmas Tree Ruin was stabilized and marked with an interpretive sign.

Management Goal:

The management goal for Christmas Tree Ruin will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Withdraw from fuel wood sale/cutting, land sale/entry/ exchange and from other land laws. No new ROWs will be issued.
4. Designate Closed OHV Area.
5. Designate as VRM Class II Area.
6. Close to vegetation modification.
7. Continue current grazing.
8. Close to all surface disturbing activities.
9. Update and implement CRMP.
10. Conduct Class III and ethnographic inventories.
11. Prepare HABS documentation. Conduct stabilization and maintenance.
12. Include in FFO Patrol and Surveillance Program.
13. Promote research.
14. Designate noise receptor points.

COTTONWOOD DIVIDE

Site Description:

There are a total of 60 acres within the boundary of the Cottonwood Divide ACEC, none of which includes public land (BLM) or federal minerals. Cottonwood Divide is on state of New Mexico land on Blanco Mesa and has been identified for acquisition.

Management Goal:

The management goal for Cottonwood Divide will be to provide proactive, long-term protection and preservation of the cultural and natural resources.

Management Prescriptions:

Management listed would be implemented upon acquisition of non-federal surface and minerals.

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Apply NSO constraint to existing leases.
2. Close to all other forms of mineral entry.
3. Acquire all non-federal surface/ minerals and easement.
4. Land is not available for disposal.
5. No new ROWs will be issued.
6. Designate Closed OHV Area.
7. Designate as VRM Class II Area.
8. Close to fuelwood cutting and sale, vegetation modification, grazing, and surface disturbing activities.
9. The Management Prescription listed would be implemented upon acquisition of non-federal surface and minerals.
10. Designate as Cottonwood Divide ACEC.
11. Prepare and implement CRMP.
12. Conduct Class III and ethnographic inventories.
13. Prepare HABS documentation. Conduct stabilization and maintenance.
14. Include in FFO Patrol and Surveillance Program.
15. Promote new research.
16. Continue current grazing.

CROW CANYON

Site Description:

There are a total of 7,795 acres within the boundary of the Crow Canyon ACEC, of which 7,149 acres are public land (BLM) and 7,146 acres contain federal minerals. Crow Canyon is a combination of the existing Crow Canyon District ACEC (CC), NM 01-39344 (NM) ACEC, and Unreachable Rockshelter (UR) SMA, and surrounding lands.

Crow Canyon is located in the center of Dinétah. Numerous Gobernador Phase pueblitos that are located in the proposed Crow Canyon ACEC. Included are: Crow Canyon, Hadlocks, Crow Canyon Rockshelter, Shaft House, Ridgetop House, Boulder Fortress, Gould Pass, NM 01-39344, Citadel, and Unreachable Rockshelter. In addition to the Navajo sites, there are numerous sites associated with the Anasazi, and there is historic occupation and use of Crow Canyon and the surrounding mesa top.

The Crow Canyon District ACEC is listed on the National Register of Historic Places and the area includes eight major ruins. Two of these, Shaft Ruin and Crow Canyon Ruin, have been stabilized. Several rock shelter storage bins and large rock art panels are located in the District. Pithouses dating to the Rosa Phase occupation (A.D. 700-900) are also located here. The National Register District covers 4,380 acres.

The Unreachable Rockshelter consists of a walled rockshelter, a series of masonry wall remnants in alcoves and on ledges, artifact concentrations, and 13 forked-stick hogans on the mesa above. The site (60 acres) occupies a series of alcoves on the north side of Smith Canyon, a right bank tributary of Largo Canyon, and the mesa top above it.

NM 01-39344 ACEC is an 80-acre parcel located on Encinada Mesa. The pueblito is a four-room pueblito situated on two levels of a rock outcrop on the edge of a cliff. Portions of the walls extend up to five feet high. To the north of the pueblito are the remains of burned hogans. The rock cliff adjacent to a spring to the west of the pueblito has extensive petroglyphs and pictographs along with a historic corral.

Management Goal:

The management goal for Crow Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy COA to UR (60 acres), NM (60 acres) and portions of CC (4,006 acres). Apply Controlled Surface Use management constraint to Ridge Top, Boulder Fortress, Gould Pass, Crow Canyon drainage, and additional acreage.
2. No Surface Occupancy constraint for new leasing. Apply Controlled Surface Use constraint to new leasing on additional acreage.
3. Close to new mineral leasing.
4. Close to all other forms of mineral entry.
5. Acquire non-federal surface and easement.
6. Land ownership not available for disposal.
7. No new ROWs for UR, NM, and portions of CC (Ridgetop, Boulder Fortress, Gould Pass, Crow Canyon drainage). For remaining acreage, new ROWs must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements.
8. Designate Limited OHV Area and close identified roads.
9. Designate UR, NM, and CC (Ridgetop, Boulder Fortress, Gould Pass, Crow Canyon drainage) as VMR Class II Area. Designate remaining acreage as VMR Class III Area.
10. Close to fuelwood cutting and sale, vegetation modification.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
12. Designate as Crow Canyon ACEC.
13. Update and implement CRMP.
14. Conduct Class III, rock art image and ethnographic inventories.
15. Prepare HABS documentation. Conduct stab. and maintenance.
16. Include in FFO Patrol and Surveillance Program.
17. Amend NRHP nomination.
18. Promote research.
19. Continue to manage for public visitation.
20. Designate noise receptor points at visitor use area, canyon, and rim. Stricter standards may apply.
21. Continue current grazing.

DEER HOUSE

Site Description:

There are a total of 361 acres within the boundary of the Deer House ACEC, all of which are public land (BLM) and all of which contain federal minerals. Deer House parcel contains a seven room pueblito with standing architecture and a portion of an intact roof. Associated with the pueblito are two fork-sticked hogans, a burned rock midden, and a possible kiln in the trash midden. The pueblito is located on a narrow rock promontory on the first bench above Rockhouse Canyon.

Management Goal:

The management goal for the Deer House ACEC will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy COA to the original 40 acres and apply a Controlled Surface Use constraint to the remaining acreage.
2. Apply a No Surface Occupancy constraint for new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire easement.
5. Land ownership not available for disposal.
6. No new ROWs will be issued.
7. Designate Closed OHV Area and close identified roads.
8. Designate as VRM Class II Area.
9. Close to fuelwood cutting, sale, and vegetation modification.
10. Continue current permitting for livestock grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries of existing ACEC.
13. Promote research.
14. Update and implement CRMP.
15. Conduct Class III and ethnographic inventories.
16. Prepare HABS documentation. Conduct stabilization and maintenance.
17. Include in FFO Patrol and Surveillance Program.
18. Nominate to NRHP.

DEVIL'S SPRING MESA

Site Description:

There are a total of 660 acres within the boundary of the Devil's Spring Mesa ACEC, all of which are public land (BLM) and all of which contain federal minerals. Devil's Spring Mesa ACEC is a combination of the existing Casa Mesa Diablo SMA (CMD) and Yeis-in-Row ACEC (YIR), and the surrounding land, which provides for additional protection of cultural resources. The enlargement of each of these areas establish ACECs that will encompass a larger piece of the early Acultural landscape.

The Ye'is-in-Row pueblito is located on an isolated boulder, whose south side exhibits a series of petroglyphs with numerous figures, including ye'is and cloud terrace. The site is a rare sample of the co-occurrence of pueblitos and rock art.

The Casa Mesa Diablo is on a bench near the head of one of the branches of Encierro Canyon. The site consists of a pueblito, two possible hogans, a mound of oxidized sandstone, and various artifact scatters and midden, Four rooms are built on the edge of the bench and one room is on an outcrop that is nearly two meters higher than the rest of the bench. The roof of a lower room was probably the means of access.

Management Goal:

The management goal for Devil's Spring Mesa will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy COA to the original 40 acres and apply a Controlled Surface Use constraint to the remaining acreage.
2. Apply a No Surface Occupancy constraint for new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire non-federal surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs for CMD. New ROWs on remaining acreage must be placed in

existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area, and close identified roads.
8. Designate as VRM Class II Area.
9. Close to fuelwood cutting and vegetation modification.
10. Continue current permitting for livestock grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
12. Designate Devil's Spring Mesa ACEC.
13. Prepare and implement CRMP.
14. Conduct Class III, rock art image and ethnographic inventories.
15. Prepare HABS documentation. Conduct stabilization and maintenance.
16. Include in FFO Patrol and Surveillance Program.
17. Amend NRHP nomination.

ENCINADA MESA–CARRIZO CANYON

Site Description:

There are a total 3,490 acres within the boundary of the Encinada Mesa ACEC, of which 3,117 acres are public land (BLM) and 3,158 acres contain federal minerals. The existing Adolfo Canyon SMA (AC), Big Star ACEC (BS), Carrixo Cranes ACEC (CC), Gomez Canyon Ruin SMA (GC), Gomez Point ACEC (GP), Hill Road Ruin SMA (HR), NM 01-39236 ACEC (NM), and Rabbit Tracks ACEC (RT), combined with surrounding lands and called Encinada Mesa–Carrizo Canyon ACEC.

Encinada Mesa and Carrizo Canyon are located in the center of Dinétah. Numerous Gobernador Phase pueblito are in the proposed Encinada Mesa ACEC, including Hill Road, Gomez Canyon, Gomez Point, and Adolfo Canyon. Gomez Point is a 60-acre ACEC, and the remaining are 40-acre SMAs. Also located within the proposed ACEC are Rabbit Tracks, Carrizo Cranes, NM 39236, and Big Star ACECs. They range from 10 to 40 acres and were designated to protect significant petroglyphs. In addition to the Navajo sites, there are numerous sites associated with the Anasazi, with historic occupation and use of Carrizo Canyon and Encinada Mesa.

Hill Road, Gomez Canyon, and Adolfo Canyon pueblitos have been documented though the Historic American Building Survey (HABS), and have been stabilized. They are also listed on the National Register of Historic Places. Over the past 50 or more years, oil and gas development on Encinada Mesa and associated canyons, along with other portions of Dinétah, has resulted in thousands of well pads, thousands of miles of roads and pipelines, and other associated features. Within the past several years, wells have been drilled within or adjacent to the existing ACECs/SMAs.

Adolfo Canyon Site is on a rock outcropping overlooking Adolfo Canyon from the west. Gould Pass Ruin, Gomez Canyon Site, and a large section of Adolfo Canyon can be seen from the site. The Pueblito has a three-room, single-story Pueblito, an extensive midden area, and six forked-stick hogans on the crest of the ridge. Two more hogans, two armadas, and a pile of burned sandstone were also recorded on the bench below. Portions of the Pueblito, hogans, and trash have been excavated.

Big Star ACEC is a 40-acre parcel located in a side canyon of Adolfo Canyon. The ACEC contains several panels of Anasazi and Navajo petroglyphs. Located near the bottom of one panel is a large four-pointed Navajo star from which the site name is derived. Other Navajo elements include other stars, corn plants, rider on horseback, several birds and bird tracks, along with geometric designs. Dot patterns may represent other stars and constellations. The Anasazi elements include anthropomorphic figures and geometric designs.

Carrizo Cranes is a 15-acre parcel along the north side of Carrizo Canyon east of Encierro Canyon. The ACEC contains a panel of Anasazi petroglyphs including four cranes and several anthropomorphic figures. The largest crane is 6 foot 11 inches tall.

Gomez Canyon Ruin is situated on al small sandstone point protruding from a bench of the mesa on the east side of Gomez Canyon. The site includes a pueblito, four forked-stick hogans, at least two midden areas, two piles of burned sandstone, and a few slab features.

Gomez Point site is on a narrow promontory projecting east from the top of the mesa toward the junction of Gomez and Carrizo Canyons. The locations of the Adams Canyon site and the Gomez Canyon pueblito can be seen, but neither site can be distinguished with the naked eye. The site consists of three noncontiguous masonry structures and several midden areas enclosed by a defensive wall.

Hill Road Ruin is at the head of a small sandstone draw running north into Carrizo Canyon. The site is on a small boulder outcrop and consists of a pueblito, a possible Hogan or windbreak, and surrounding trash deposits. The site covers 40 acres.

NM-01-39236 ACEC is a 10-acre parcel located in a side canyon off Carrizo Canyon. The petroglyph panels are scattered across two levels of the canyon wall. Several of the petroglyph elements are believed to be Pueblo IV or later while other elements are Anasazi and early Navajo.

Rabbit Tracks is a 10-acre parcel at the junction of Encierro and Carrizo Canyons. The ACEC contains a panel of early Navajo petroglyphs that include the pattern of rabbit tracks, but instead of the tracks of rabbits they are the footprints of a bobcat or cougar. Adjacent to this element are two large stars and a circle of dots. Also included in the ACEC is a large folk-art panel of a woman wearing a dress containing detailed floral and avian elements.

Management Goal:

The management goal for Encinada Mesa–Carrizo Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy COA to AC, CC, GC, GP, HR, NM, and RT. Use the existing pad for BS. Apply Controlled Surface Use management constraint to additional acreage.
2. Apply No Surface Occupancy constraint for new oil and gas leasing to AC, BS, CC, GC, GP, HR, NM, and RT. Apply Controlled Surface Use constraint to new leasing on additional acreage.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals, surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs for AC, BS, CC, GC, and HR. New ROWs must be placed in existing ROW/easement disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements for GP, NM, RT and in remaining ACEC acreage.
7. Designate Limited OHV Area and close identified roads.
8. Designate AC, BS, CC, GC, GP, HR, NM, and RT as VRM Class II Area. Designate remaining acreage as VRM Class III Area.
9. Close the fuelwood cutting/sale and vegetation modification.
10. Close 10 acres of NM to grazing. Continue current permitting on remainder of acreage.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
12. Designate Encinada Mesa–Carrizo Canyon ACEC.
13. Prepare and implement CRMP.

14. Conduct Class III, rock art image and ethnographic inventories.
15. Prepare HABS documentation. Conduct stabilization and maintenance.
16. Include in FFO Patrol and Surveillance Program.
17. Amend NRHP nomination.
18. Promote research.
19. Designate noise receptor points at defined sites in GC, GP, and HR. No designation on remainder of acreage.

FRANCES MESA

Site Description:

There are a total of 7,657 acres within the boundary of the Frances Mesa ACEC, of which 5,857 acres are public land (BLM) and 5,890 acres contain federal minerals. Frances Mesa is located south of the San Juan River near the northern edge of Dinétah. Several Gobernador Phase pueblitos, including the existing Frances Canyon Ruin ACEC, are located in the proposed Frances Mesa ACEC. Frances Canyon Ruin has been identified as a location important in the origin story. Two recent, large-scale cultural resource inventories have been conducted on Frances Mesa and the surrounding areas. These inventories have revealed large Anasazi and early Navajo communities. In some areas, the site density is over 160 sites per section. In addition to traditional use of the area, Dinétah, including Frances Mesa, is a popular area for people to learn about other the cultural history of the region. Frances Canyon Ruin has been stabilized and prepared for public interpretation. It is also listed on the National Register of Historic Places.

Over the past 50 or more years, oil and gas development on Frances Mesa and other portions of Dinétah has resulted in thousands of well pads, thousands of miles of roads and pipelines, and other associated features. Few areas are further than 0.25 miles from a well pad, compressor, road, or pipeline. Projected in-field development will reduce the pristine areas and the distance from the cultural values to disturbance. In addition, opening new areas to vehicle traffic may increase the frequency of illegal excavation and collection of cultural values. Current and proposed development will also affect the experience of those coming to Frances Mesa, and other portions of Dinétah, for traditional or recreational uses. The existing Frances Ruin ACEC (FR) and Romine Canyon SMA (RC) are combined with surrounding lands and called Frances Mesa ACEC.

Frances Ruin is one of the largest known refugee sites with 40 rooms, a plaza, and a three-story tower. It was excavated in 1915 by Earl Morris with later investigations reported through the 1940's and into the 1970's. It is listed on the National Register of Historic Places. The ACEC covers 40 acres.

Romine Canyon is on a sandstone crag that protrudes west from a bench of a finger of Frances Mesa. The site consists of a single-story six-room pueblito with an entry way or courtyard, midden areas, and a defensive wall that isolates the pueblito from the rest of the bench.

Management Goal:

The management goal for Frances Mesa will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation to new leasing for FR and RC. Manage additional acreage under Controlled Surface Use constraint.
2. Apply No Surface Occupancy constraint to existing leases for FR and RC. Apply Controlled Surface Use constraint to new oil and gas leasing on additional acreage.
3. Close to all other forms of mineral entry.

4. Acquire all non-federal minerals, surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs in FR and RC. New ROWs must be placed in existing ROW/easement disturbance for additional acreage. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements.
7. Designate Limited OHV Area and close identified roads.
8. Designate T.30N., R.6W., Sec.31 SE1/4 SE1/4 – 40 acres, SE1/2 NE1/4 SE1/4 – 20 acres, E1/2 SE1/4 NW1/4 SE1/4 – 5 acres, and E1/2 E1/2 SW1/4 SE1/4 – 10 acres as VRM Class II Area. Designate remainder of acreage as VMR Class III Area.
9. Close to fuelwood cutting and sale and vegetation modification.
10. Close FR to grazing—40 acres. Continue current permitting on remaining acreage.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
12. Designate Frances Mesa ACEC.
13. Prepare and implement CRMP.
14. Conduct Class III and ethnographic inventories.
15. Prepare HABS documentation. Conduct stabilization and maintenance.
16. Include in FFO Patrol and Surveillance Program.
17. Nominate to NRHP as District.
18. Designate noise receptor points at FR defined sites. No designation for remaining acreage.

GOULD PASS CAMP

Site Description:

There are a total of 34 acres within the boundary of the Gould Pass Camp ACEC, all of which are public land (BLM) and all of which contain federal minerals. Only two ACECs have been established to protect the remains of early Navajo habitation sites, which are not associated with pueblitos. Gould Pass Camp is the smaller of the two, with only one site containing standing and collapsed forked-stick hogans. Superior Mesa Community includes numerous hogan sites, pictographs and petroglyphs, sweats, and other associated features. Located at the northwest portion of Encinada Mesa, a series of five forked-stick hogans are situated on an east-facing bench on a side canyon of Carrizo Canyon. Gould Pass Camp also contains a rare example of a partially standing forked stick hogan.

Management Goal:

The management goal for the Gould Pass Camp will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Implement closed OHV designation.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.

9. Continue current permitting for livestock grazing.
10. Restrict surface disturbing activities to previously disturbed areas.
11. Designate Gould Pass Camp ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.

HUMMINGBIRD

Site Description:

There are a total of 40 acres within the boundary of the Hummingbird ACEC, all of which are public land (BLM) and all of which contain federal minerals. Hummingbird ACEC is a 40-acre parcel on a bench above Johnson Canyon. The five-room pueblito is located on a boulder with a segment of intact roof over Room 1. The site also possesses a fortified entryway.

Management Goal:

The management goal for the Hummingbird will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy COA for actions on current oil and gas leases.
2. Close to new oil and gas leasing. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC.
6. Implement closed OHV designation.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Close to surface disturbing activities.
11. Designate Gould Pass Camp ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.

KACHINA MASK

Site Description:

There are a total of 202 acres within the boundary of the Kachina Mask ACEC, all of which are public land (BLM) and all of which contain federal minerals. Kachina Mask is a 10-acre parcel containing Kachina Mask Pueblito. It is a three-room structure and is the earliest known pueblito in Dinétah, dating to 1680, the year of the Pueblo Revolt. The pueblito is situated on a narrow bench of a side canyon of Jesus Canyon.

Management Goal:

The management goal for Kachina Mask will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy COA to permits on current oil and gas leases.
2. Attach NSO stipulation to new oil and gas leases.
3. Close to all other forms of mineral entry.
4. Acquire easement.

5. Land ownership not available for disposal.
6. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area and close identified roads.
8. Designate VRM Class II Area.
9. Close to fuelwood cutting and sale and vegetation modification.
10. Continue current permitting for livestock grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries of existing ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Prepare and implement CRMP.
18. Prepare HABS documentation. Conduct stabilization and maintenance.

KIN YAZHI (LITTLE HOUSE)

Site Description:

There are a total of 40 acres within the boundary of the Kin Yazhi ACEC, all of which are public land (BLM) and all of which contain federal minerals. Kin Yazhi sits on the eastern spur of a narrow mesa that separates Rockhouse Canyon from Rincon Largo and includes 40 acres. It commands a view up Largo Canyon for about six miles, down Largo for about a mile, and up Rincon Largo for about two miles. The structure has a north-facing doorway narrowed by a masonry pillar and contains evidence of a corner fireplace.

Management Goal:

The management goal for Kin Yazhi will be to preserve cultural and recreational values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulationto new oil and gas leases. Continue management on existing leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Implement limited OHV designation and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
11. Designate as Kin Yazhi ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Prepare HABS documentation. Conduct stabilization and maintenance.
15. Nominate to NRHP.
16. Promote research.

KIVA

Site Description:

There are a total of 103 acres within the boundary of the Kiva ACEC, all of which are public land (BLM) and all of which contain federal minerals. Kiva ACEC is located on Encinada Mesa above the east side of Largo Canyon. The pueblito is reduced to a rubble mound, with short wall fragments that may never have been roofed. There are at least six rooms. Access to the butte containing the pueblito may have been though a notched pole ladder or pegs wedged into cracks on the butte sides. Many of the middle Largo Canyon pueblitos are visible from the site. The original located description called the pueblito a 'kiva on top of the butte', hence the name.

Management Goal:

The management goal for Kiva will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints on existing leases.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Enlarge boundaries of existing ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Prepare HABS documentation. Conduct stabilization and maintenance.

MUÑOZ CANYON

Site Description:

There are a total of 268 acres within the boundary of the Muñoz Canyon ACEC, all of which are public land (BLM) and all of which contain federal minerals.

Management Goal:

The management goal for the Muñoz Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Apply Controlled Surface Use constraint to new and current leases.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.

6. Implement limited OHV designation and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Muñoz Canyon ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Prepare HABS documentation. Conduct stabilization and maintenance.
15. Nominate to NRHP.
16. Promote research.
17. Prepare and implement CRMP.

POINTED BUTTE

Site Description:

The are a total of 90 acres within the boundary of the Pointed Butte Ruin ACEC, all of which are public land (BLM) and all of which contain federal minerals. The Pointed Butte Ruin is a Navajo refugee site that covers 40 acres and occupies the top of a steep-sided isolated butte and the surrounding area. The site consists of the remains of about three rooms on the butte, three forked hogans south of it, and substantial areas of trash surrounding the pueblitos and hogans. The most intact pueblito walls are segments that extend downward into crevices in the butte. Access to the butte was apparently by means of a masonry entryway and natural rock passage on the east side of the butte.

Management Goal:

The management goal for Pointed Butte Ruin will be to preserve cultural and recreational values.

Management Prescriptions:

1. Apply No Surface Occupancy stipulation on new oil and gas leases. Continue management of existing leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC.
6. Designate closed OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Close to surface disturbing activities.
11. Enlarge boundaries and designate as Pointed Butte ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Conduct stabilization maintenance.
15. Promote research.
16. Update and implement CRMP.

PORK CHOP PASS

Site Description:

There are 44 acres within the boundary of the Pork Chop Pass ACEC, none of which are public land (BLM) or federal minerals. Pork Chop Pass is on state of New Mexico land and is identified for acquisition. This ACEC contains a well preserved Navajo defensive site and may have been part of a canyon wide defensive strategy.

Management Goal:

The management goal for the Pork Chop Pass will be the protection and preservation of cultural values.

Management Prescriptions:

1. Management listed would be implemented upon acquisition of non-federal surface and minerals.
2. Apply No Surface Occupancy stipulation on new minerals leases. Continue management of existing leases under No Surface Occupancy constraints.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.
5. Acquire non-federal surface and easement.
6. Land ownership not available for disposal.
7. New ROWs must be placed in existing ROW/easement disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements.
8. Implement limited OHV designation and close identified roads.
9. Implement VRM Class II designation.
10. Close to fuelwood cutting and sale, vegetation modification.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Designate as Pork Chop Pass ACEC.
13. Continue current grazing.

PRETTY WOMAN

Site Description:

There are a total of 84 acres within the boundary of the Pretty Woman ACEC, all of which are public land (BLM) and all of which contain federal minerals. Pretty Woman ACEC is located primarily on a ridge extending north into a side canyon of Blanco Canyon. It is one of the western most known pueblitos in the Dinétah. The pueblito is located on two levels at the terminal end of the ridge. Four rooms, which comprise the majority of the structure, are located along the south side of the ridge terminus. On top of the end of the ridge are remains of what may have been low walls. A forked stick hogan was adjacent to the pueblito. South of the pueblito are a sweat lodge, storage features, and a series of petroglyphs including a female ye'i, from which the site derives its name.

Management Goal:

The management goal for Pretty Woman will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs.
6. Implement closed OHV designation.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate Pretty Woman ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.

14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Prepare HABS documentation. Conduct stabilization and maintenance.

PRIETA MESA

Site Description:

There are a total of 31 acres within the boundary of the Prieta Mesa ACEC, of which 26 acres are public land (BLM) and 31 acres contain federal minerals. Prieta Mesa is a Navajo refugee site on the point of a bench of Prieta Mesa which drops sharply about 100 feet to the broad bench below. The site consists of a masonry-walled crag with a probable entryway. Three or four forked-stick or cribbed log hogans are enclosed by the wall. The entry appears to consist of a passage under a large horizontal timber into a narrow masonry room or corridor at the east end of the crag. The defensive wall differs from others because it has a number of large upright timbers set among the wall stones. A fourth hogan or sweat lodge lies on a small bench just northwest of the crag.

Management Goal:

The management goal for Prieta Mesa will be to preserve cultural and recreational values.

Management Prescriptions:

1. Continue No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire non-federal surface and easement.
4. Land ownership not available for disposal.
5. No new ROWs.
6. Implement closed OHV designation.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Close to surface disturbing activities.
11. Designate as Prieta Mesa ACEC.
12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Promote research.
15. Update and implement CRMP.
16. Prepare HABS documentation. Conduct stabilization and maintenance.

RINCON LARGO DISTRICT

Site Description:

There are a total of 490 acres within the boundary of the Rincon Largo District ACEC, all of which are public land (BLM) and all of which contain federal minerals. Rincon Largo District ACEC contains two pueblitos including Rincon Largo Runine and Tower of the Standing God. The Tower of the Standing God is on a bench on the north side of the mesa-dividing Johnson Canyon from Rincon Largo. Masonry rooms are built next to three boulders and a tower may have been built on top of one of the boulders. A Ye'ii figure has been incised into one of the rocks. Rincon Largo Ruin and a third pueblito are visible from this site. Rincon Largo Ruin sits on a sandstone crag and two stone circles are located down slope to the northeast.

Management Goal:

The management goal for Rincon Largo District will be to preserve cultural and recreational values.

Management Prescriptions:

1. Apply No Surface Occupancy COA on original acreage. Apply Controlled Surface Use constraints on expanded acreage.
2. Apply No Surface Occupancy stipulation on new leases.
3. Close to all other forms of mineral entry.
4. Acquire easement.
5. Land ownership not available for disposal.
6. No new ROWs on original 180-acre SMA. New ROWs on additional acreage must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale and vegetation modification.
10. Continue current permitting for livestock grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries and designate as Rincon Largo District ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Update and implement CRMP.
18. Prepare HABS documentation. Conduct stabilization and maintenance.

RINCON ROCKSHELTER

Site Description:

There are a total of 324 acres within the boundary of the Rincon Rockshelter ACEC, all of which are public land (BLM) and all of which contain federal minerals. Rincon Rockshelter ACEC contains two Navajo defensive sites that include Rincon Rockshelter and Johnson 88 Pueblito. Rincon Rockshelter consists of a walled rockshelter, masonry rooms on the cliff edge above, and midden debris on the bench below. The interior is heavily covered with mud mortar bearing many fingerprints. On the edge of the cliff are low walls outlining two rooms, one on either side of a crevice that may have been part of an entrance to the rockshelter.

Management Goal:

The management goal for Rincon Rockshelter will be to preserve cultural and recreational values.

Management Prescriptions:

1. Apply No Surface Occupancy COA on original 40 acres and 80 acres around Johnson 88 Pueblito.
2. Apply No Surface Occupancy to new leasing.
3. Close to all other forms of mineral entry.
4. Acquire easement.
5. Land ownership not available for disposal.
6. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale and vegetation modification.
10. Continue current permitting for livestock grazing.

11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries and designate as Rincon Rockshelter ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.
16. Update and implement CRMP.
17. Prepare HABS documentation. Conduct stabilization and maintenance.

SAN RAFAEL CANYON

Site Description:

There are a total of 5,668 acres within the boundary of the San Rafael Canyon ACEC, of which 4,234 acres are public land (BLM) and 5,027 acres contain federal minerals. San Rafael Canyon ACEC is the largest of the Navajo ACECs. It contains three sites listed on the State Register of Cultural Properties: Old Fort, Kin Naa Daa, and Three Corn Ruins. Old Fort Ruin was built defensively with a high wall on two sides and a steep mesa edge protecting the remainder of the site. Forked-stick hogans and masonry structures built in the pueblito style were contained inside the walls. Three Corn Ruin is a multiple room pueblito built on top of a large sandstone outcrop rising above a mesa finger. Kin Naa Daa (Maize House) is a small pueblo on a talus border with hand and footholds leading from the boulder to the pueblito entrances. Numerous other early Navajo sites have also been recorded on the mesa and mesa benches above the canyon.

Management Goal:

The management goal for San Rafael Canyon will be to preserve cultural and recreational values.

Management Prescriptions:

1. Continue management under Controlled Surface Use constraints for new and current leased acreage.
2. Close to all other forms of mineral entry.
3. Acquire all non-federal minerals.
4. Acquire non-federal surface and easement.
5. Land ownership not available for disposal.
6. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area.
8. Implement VRM Class II designation around pueblitos. Designate remainder of acreage to VRM Class III.
9. Close to fuelwood cutting and sale.
10. Vegetation modification permitted on a case-by-case basis with approval by cultural staff.
11. Continue current permitting for livestock grazing.
12. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
13. Designate as San Rafael Canyon ACEC.
14. Conduct Class III and ethnographic inventories.
15. Include in FFO Patrol and Surveillance Program.
16. Nominate to NRHP.
17. Promote research.
18. Update and implement CRMP.
19. Prepare HABS documentation. Conduct stabilization and maintenance.
20. Manage for public visitation.
21. Designate noise receptor points at defined sites and visitor use area.

SIMON RUIN

Site Description:

There are a total of 47 acres within the boundary of the Simon Ruin ACEC, all of which are public land (BLM) and all of which contain federal minerals. Simon Ruin ACEC contains a Navajo refugee site that is located within the boundaries of Simon Canyon Recreation Area and ACEC. It is the northwesternmost recorded Gobernador Phase pueblito and consists of a well preserved one-room structure built on top of a large boulder.

Management Goal:

The management goal for Simon Ruin will be to preserve cultural and recreational values.

Management Prescriptions:

1. Continue No Surface Occupancy stipulation on new oil and gas leases. Continue management of current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC.
6. Designate closed OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Grazing prohibited in the flatlands and canyon bottom.
10. Close to surface disturbing activities.
11. Designate as Simon Ruin ACEC.
12. Conduct ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Promote research.
15. Update and implement CRMP.
16. Conduct stabilization and maintenance.
17. Continue to manage for public visitation.
18. Designate noise receptor points at rim, canyon (including ruin), and bottom flatland.

STAR ROCK

Site Description:

There are a total of 60 acres within the boundary of the Star Rock ACEC, of which 24 acres are public land (BLM) and 24 acres contain federal minerals. The remainder of Star Rock ACEC is on state of New Mexico land and is identified for acquisition.

Management Goal:

The management goal for the Star Rock will be the protection and preservation of cultural values.

Management Prescriptions:

Management listed on non-federal acreage would be implemented upon aquistition of non-federal surface and minerals.

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire all non-federal minerals.
4. Acquire non-federal surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs in ACEC.
7. Designate closed OHV Area.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale, vegetation modification.
10. Close to surface disturbing activities.
11. Designate Star Rock ACEC.

12. Conduct Class III and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Promote research.
15. Update and implement CRMP.
16. Prepare HABS documentation. Conduct stabilization and maintenance.
17. Continue current grazing.

STRING HOUSE

Site Description:

There are a total of 60 acres within the boundary of the String House ACEC, none of which are public land (BLM) and none of which contain federal minerals. String House ACEC is on state of New Mexico land and is identified for acquisition.

Management Goal:

The management goal for the String House will be the protection and preservation of cultural values.

Management Prescriptions:

1. Management listed would be implemented upon acquisition of non-federal surface and minerals.
2. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.
5. Acquire non-federal surface and easement.
6. Land ownership not available for disposal.
7. No new ROWs in ACEC.
8. Designate closed OHV Area.
9. Implement VRM Class II designation.
10. Close to fuelwood cutting and sale, vegetation modification.
11. Close to surface disturbing activities.
12. Designate String House ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.
16. Update and implement CRMP.
17. Prepare HABS documentation. Conduct stabilization and maintenance.
18. Nominate to NRHP.
19. Continue current grazing.

SUPERIOR MESA

Site Description:

There are a total of 6,066 acres within the boundary of the Superior Mesa ACEC, of which 5,007 acres are public land (BLM) and 5,009 acres contain federal minerals. Superior Mesa ACEC is a combination of the existing Cibola Canyon ACEC (CC), Compressor Station SMA (CS), Foothold and Overlook Ruins District SMA (FandO), Hooded Fireplace and Largo School District ACEC (HandL), Superior Mesa Community ACEC (SMC), and surrounding lands.

Primarily located on the top of Superior Mesa, the ACEC also extends to the bottom of a side canyon of Palluche Canyon. Numerous forked-stick hogans with associated features, such as sweat lodges, thermal features, and middens, are found there. The ACEC also contains several petroglyph and pictograph panels, including Ye'i Display.

Compressor Station Ruin sits on the second broad bench on the south side of Largo Canyon. The site consists of a Pueblito on a freestanding sandstone outcrop, a burned rock pile, a slab-lined bin and forked-stick hogan, and an alcove containing a seep or spring. The pueblito has four ground floor rooms with evidence of a second story.

The Foothold and Overlook Ruins District is on the east side of Palluche Canyon. Foothold Ruin sits on an isolated sandstone monolith with additional rooms at the base. Access up the monolith is by a set of footholds in the rock face. Roof beams and remnants of a hooded fireplace are found on the pueblito. The Overlook Site looks down on Foothold Ruin. It includes a pueblito, forked-stick hogans, a stone-based hogan, and other external features.

The Hooded Fireplace and Largo School District ACEC is located on a bench above Largo Canyon. The Largo School pueblito is small, containing two or three rooms, while the Hooded Fireplace Site is larger, with 11 rooms. The latter site name is from a well-preserved fireplace found in the corner of one of the rooms. There are many small Navajo sites also included within the District boundaries.

Superior Mesa Community ACEC is primarily on top of Superior Mesa, but also extending to the bottom of a side canyon of Palluche Canyon. The ACEC contains numerous forked-stick hogans along with associated features such as sweat lodges, thermal features and middens. Also, within the ACEC are several petroglyph and pictograph panels including Ye'i Display.

Management Goal:

The management goal for the Superior Mesa will be the protection and preservation of cultural values.

Management Prescriptions:

1. Apply No Surface Occupancy COA to CS, FandO, Handl, CC, 40 acres around Millennium Pueblito and 75 acres north of CC. Apply Controlled Surface Use constraint to additional acreage.
2. Attach No Surface Occupancy stipulation on new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire non-federal surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs in CS, FandO, HandL, 40 acres around Millennium Pueblito and 75 acres north of CC. New ROWs in CC must be placed in existing road. New ROWs in SMC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
7. Designate Limited OHV Area and close identified roads.
8. Implement VRM Class II designation for CC, SMC, FandO, HandL, and CS. Implement VRM Class III designation on remainder of acreage.
9. Close to fuelwood cutting and sale.
10. Close to vegetation modification for CC, SMC, CS, FandO, and HandL. Permitted on a case-by-case basis on remainder of acreage.
11. Close 10 acres of CC to grazing. Continue current permitting on remainder of acreage.
12. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
13. Enlarge boundaries and rename as Superior Mesa ACEC.
14. Conduct Class III and ethnographic inventories.
15. Include in FFO Patrol and Surveillance Program.
16. Nominate to NRHP.
17. Promote research.
18. Update and implement CRMP.
19. Prepare HABS documentation. Conduct stabilization and maintenance.
20. Continue to manage for public visitation.
21. Designate noise receptor points at sites: CC, and HandL. No designation on remainder of acreage.

TAPACITO AND SPLIT ROCK

Site Description:

There are a total of 302 acres within the boundary of the Tapacito and Split Rock ACEC, all of which are public land (BLM) and all of which contain federal minerals. Tapacito and Split Rock ACEC contains two Navajo defensive sites that include Tapacito and Split Rock. Tapacito consists of four well preserved rooms and the remains of three others. The site was built in the A.D. 1690s making it one of the earliest recorded refugee sites. Split Rock is located less than one-half mile north of Tapacito on top of a large cracked boulder. There are four first-story rooms and there may have been a second story at one time.

Management Goal:

The management goal for Tapacito and Split Rock will be to preserve cultural and recreational values.

Management Prescriptions:

1. Apply No Surface Occupancy COA to current oil and gas leases within original acreage. Apply Controlled Surface Use on expanded acreage.
2. Attach NSO stipulation to new oil and gas leases.
3. Close to all other forms of mineral entry.
4. Acquire easement.
5. Land ownership not available for disposal.
6. No new ROWs in ACEC. Coordinate with ROW holders and maintenance and use of existing ROWs.
7. Designate Limited OHV Area and close identified roads.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale, and vegetation modification.
10. Continue current permitting on grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries and designate as Tapacito and Split Rock ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.
16. Update and implement CRMP.
17. Conduct stabilization and maintenance.
18. Continue to manage for public visitation.
19. Designate noise receptor points.

TRUBY'S TOWER

Site Description:

There are a total of 160 acres within the Truby's Tower ACEC, of which 82 acres are public land (BLM) and 82 acres contain federal minerals. Truby's Tower ACEC is on state of New Mexico land and is identified for acquisition.

Management Goal:

The management goal for the Truby's Tower will be the protection and preservation of cultural values.

Management Prescriptions:

1. Management listed on non-federal acerage would be implemented upon acquisition of non-federal surface and minerals.
2. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management under No Surface Occupancy constraints.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.

5. Acquire non-federal surface and easement.
6. Land ownership not available for disposal.
7. New ROWs must be placed in existing ROW/easement disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements.
8. Designate Limited OHV Area and close identified roads.
9. Implement VRM Class II designation.
10. Close to fuelwood cutting and sale, vegetation modification.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to minimize disturbance and impacts.
12. Designate Truby's Tower ACEC.
13. Conduct Class III and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Promote research.
16. Update and implement CRMP.
17. Prepare HABS documentation. Conduct stabilization and maintenance.
18. Continue current grazing.

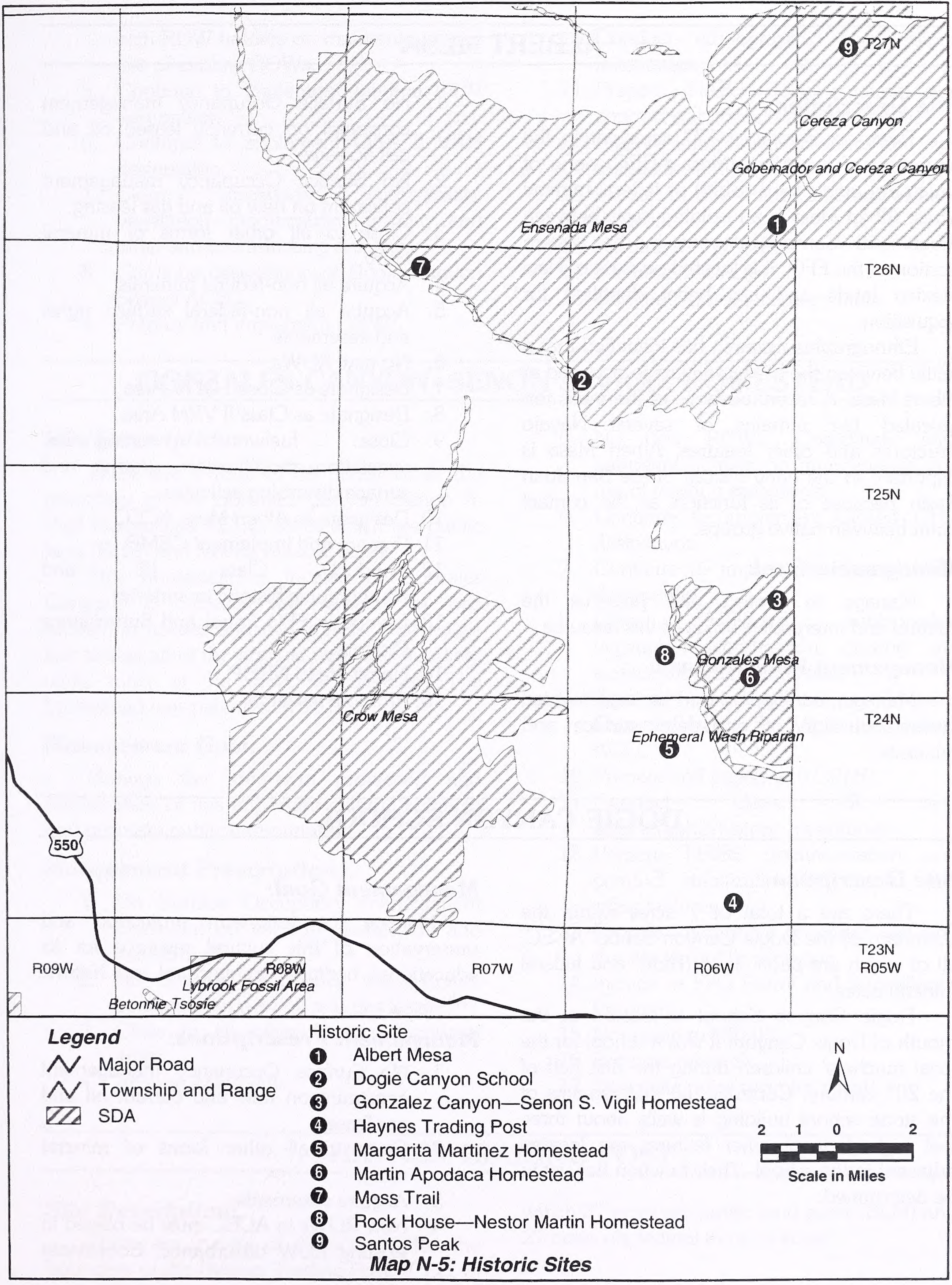
HISTORIC SITES

General Description

Although Hispanic and Euro-Americans lived in the San Juan Basin for almost 200 years, there is little structural evidence for the early occupation on federal lands.

Most ranch houses or other structures were built on lands which were transferred to the owners through the Homestead Act passed in 1862 and are located on private land. In some cases, land containing early homestead structures were returned to federal ownership. Four homesteads have been included within ACEC boundaries.

Also included in this section are structures that supported the homesteads, a school, a trading post, and a trail. Two other ACECs have been designated to protect important sites where significant contact between Native American populations and Euro-Americans occurred.



Map N-5: Historic Sites

ALBERT MESA

Site Description:

There are a total of 177 acres within the boundary of the Albert Mesa ACEC, none of which are public land (BLM) or federal mineral acres. Albert Mesa is an isolated mesa between Albert and Carrizo Canyons in the eastern portion of the FFO. It is located on state of New Mexico lands and has been identified for acquisition.

Ethnographic research has identified that a battle between the Utes and Navajo occurred at Albert Mesa. A reconnaissance of the mesa top revealed the remains of several Navajo structures and other features. Albert Mesa is important in the early history of the San Juan Basin because of its function as the contact point between native groups.

Management Goal:

Manage to protect and preserve the cultural and interpretive value of this resource.

Management Prescriptions:

Management listed would be implemented upon acquistion of on-federal surface and minerals.

1. No Surface Occupancy management constraint on currently leased oil and gas acreage.
2. No Surface Occupancy management constraint on new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.
5. Acquire all non-federal surface rights and easements.
6. No new ROWs.
7. Designate as Closed OHV Area.
8. Designate as Class II VRM Area.
9. Close: fuelwood cutting/sales, vegetation modification, grazing and surface disturbing activities.
10. Designate as Albert Mesa ACEC.
11. Prepare and implement CRMP.
12. Conduct Class III and ethnographic/historic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.

DOGIE CANYON SCHOOL

Site Description:

There are a total of 7 acres within the boundary of the Dogie Canyon School ACEC, all of which are public land (BLM) and federal mineral acres.

Dogie Canyon School is located at the mouth of Dogie Canyon. It was a school for the local ranchers' children during the first half of the 20th century. Currently, all that remains of the stone school building is walls about three feet high. Several other features are located adjacent to the school. Their function has yet to be determined.

Management Goal:

Manage the long-term protection and preservation of this cultural resource for its educational, heritage, architectural and historic value.

Management Prescriptions:

1. No Surface Occupancy management constraint on new and current oil and gas leases.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate

with ROW holders on maintenance and use of existing ROWs.
5. Continue to implement Limited OHV designation.
6. Continue to implement Class II VRM designation.
7. Close: fuelwood cutting/sales, vegetation modification, grazing and other surface disturbing activities.
8. Continue designation of Dogie Canyon School ACEC.
9. Prepare and implement CRMP.
10. Conduct ethnographic and historic inventories.
11. Prepare HABS documentation and conduct stabilization of schoolhouse.
12. Prepare interpretive brochure and sign the site for public visitation.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Designate noise receptor points.

GONZALES CANYON–SENON S. VIGIL HOMESTEAD

Site Description:

There are a total of 36 acres within the boundary of the Gonzalez Canyon–Senon S. Vigil Homestead ACEC, all of which are public land (BLM) and federal mineral acres.

This homestead is located in Gonzales Canyon. It contains the remains of two sandstone houses and two corrals. One house has almost all of the original walls still standing, while most of the other is collapsed. The homestead was patented in 1917.

Management Goal:

Manage the long-term protection and preservation of this important cultural resource and promote public interpretation.

Management Prescriptions:

1. No Surface Occupancy management constraint on currently leased oil and gas acreage.
2. No Surface Occupancy management constraint on new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire easements.
5. No new ROWs. Coordinate with easement holders on maintenance and use of existing easements.
6. Continue to implement Closed OHV designation.
7. Continue to implement Class II VRM designation.
8. Close: fuelwood cutting/sales, vegetation modification, grazing and surface disturbing activities.
9. Continue to designate as Gonzalez Canyon-Senon S. Vigil Homestead ACEC.
10. Prepare and implement CRMP.
11. Conduct Class III and ethnographic/historic inventories.
12. Prepare HABS documentation and conduct stabilization of houses and other features.
13. Prepare interpretive brochure and sign the site for public visitation.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Designate noise receptor points.

HAYNES TRADING POST

Site Description:

There are a total of 43 acres within the boundary of the Haynes Trading Post ACEC, of which 27 acres are public land acres (BLM) and 27 acres are federal mineral acres.

Haynes Trading Post is a multi-room sandstone structure south of the existing historic ACECs. The trading post was operated by a Dr. Haynes, and served both the local community of homesteaders and those traveling north towards Farmington. The main road from Albuquerque and Cuba was in the bottom of Largo Canyon until NM 44 (now US 550) was constructed. Currently, only a few walls remain standing. In addition to providing goods for the Hispanic community, the trading post was used by the local Navajos.

Management Goal

Preserve and protect this important interpretive and cultural resource.

Management Prescriptions:

1. No Surface Occupancy management constraint on new and leased oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Acquire non-federal surface rights and easements.
4. New ROWs in ACEC must be placed in existing ROW/easement disturbance. Coordinate with ROW holders on maintenance and use of existing ROWs/easements.
5. Designate as Limited OHV Area and close identified roads.
6. Designate as Class II VRM Area.
7. Close: fuelwood cutting/sales, vegetation modification, acquired grazing lands and other surface disturbing activities.
8. Designate as Haynes Trading Post ACEC.
9. Prepare and implement CRMP.
10. Conduct Class III and ethnographic/historic inventories.
11. Prepare HABS documentation and conduct stabilization of house and other features.
12. Prepare interpretive brochure and sign the site for public visitation.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Designate noise receptor points.

MARGARITA MARTINEZ HOMESTEAD

Site Description:

There are a total of 10 acres within the boundary of the Margarita Martinez Homestead ACEC, all of which are public land (BLM) and federal mineral acres.

This site is located in Tafoya Canyon, a side canyon of Largo Canyon. The homestead contains a four-room stone and jacal house, a corral complex and a spring. The house was constructed in about 1908 by the widow Margarita Martinez who moved here from Corrales.

Prior to or soon after World War I, several Hispanic homesteads, including Gonzales Canyon-Senon S. Vigil Homestead, Martin Apodaca Homestead, and Margarita Martinez Homestead were established. These and other homesteads were part of a small community, which also included a church, a store/trading post, and community buildings.

Management Goal:

Manage to protect and preserve cultural values and their public interpretation.

Management Prescriptions:

1. No Surface Occupancy management constraint on currently leased and new oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. Continue with no new ROWs in ACEC.
5. Continue to implement Closed OHV Designation.

6. Continue to implement Class II VRM Designation.
7. Close: fuelwood cutting/sales, vegetation modification, grazing and surface disturbing activities.
8. Continue designation of Margarita Martinez Homestead as ACEC.
9. Prepare and implement CRMP.
10. Conduct Class III and ethnographic/historic inventories.
11. Prepare HABS documentation and conduct stabilization of houses and other features.
12. Prepare interpretive brochure and sign the site for public visitation.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Designate noise receptor points.

MARTIN APODACA HOMESTEAD

Site Description:

There are a total of 92 acres within the boundary of the Martin Apodaca Homestead ACEC, all of which are public land (BLM) and federal mineral acres.

This site is located in a side canyon off Largo Canyon. The homestead consists of three structures and was referred to as "El Polito" by the local residents. The largest structure was once used as a church and was called "El Buen Pastor." The other two structures were believed to have been houses. A series of springs east of the structures provide water for several very large cottonwoods that shade the two eastern structures. The homestead was patented in 1919.

Management Goal:

Protect and preserve the cultural value of the site and their public interpretation.

Management Prescriptions:

1. No Surface Occupancy management constraint on currently leased and new oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. New ROWs in ACEC must be placed in existing ROW/easement disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs/easements.
5. Continue to implement Limited OHV Designation and close identified roads.
6. Continue to implement Class II VRM Designation.
7. Close: fuelwood cutting/sale, vegetation modification and grazing.
8. Close bottom of canyon to surface disturbing activities. Restrict other surface disturbance to previously disturbed areas.
9. Continue designation as Martin Apodaca Homestead ACEC.
10. Prepare and implement CRMP.
11. Conduct Class III and ethnographic/historic inventories.
12. Prepare HABS documentation and conduct stabilization.
13. Prepare interpretive brochure and sign the site for public visitation.
14. Nominate to NRHP.
15. Promote Research.
16. Designate noise receptor points.

MOSS TRAIL

Site Description:

There are a total of 28 acres within the boundary of the Moss Trail ACEC, all of which are both public land (BLM) and federal mineral acres.

Moss Trail consists of the remnants of a stock trail that was built up the steep wall of Largo Canyon to facilitate moving livestock between Largo Canyon and Encinada Mesa. The presence of numerous Native American petroglyphs along the trail indicates that the route was once an important trail during early Navajo occupation in the 15th to 18th centuries.

Management Goal:

Manage the proactive long-term protection and preservation of Moss Trail's cultural and natural resources.

Management Prescriptions:

1. No Surface Occupancy management constraint on new and leased oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. No new ROWs in ACEC. Approval required prior to maintenance of any existing ROW.
5. Designate as Closed OHV Area.
6. Designate at Class II VRM Area.
7. Close: fuelwood cutting/sale, vegetation modification, and surface disturbing activities.
8. Continue current livestock grazing permitting.
9. Designate site as Moss Trail ACEC.
10. Prepare and implement CRMP.
11. Conduct Class III and ethnographic/historic inventories.
12. Include in FFO Patrol and Surveillance Program.
13. Nominate to NRHP.
14. Promote research.
15. Designate noise receptor points.

ROCK HOUSE–NESTOR MARTIN HOMESTEAD

Site Description:

There are a total of 51 acres within the boundary of the Rock House–Nestor Martin Homestead ACEC, all of which are public land (BLM) acres and none of which are federal mineral acres.

This site is located at the bottom of Largo Canyon. Currently, all that remains of the old homestead are sandstone walls of the house, foundation stones of an outbuilding and scattered remains of a masonry and wooden fence. This may be one of the oldest Euro-American sites within Largo Canyon. An 1882 map from the Surveyor General's Office in Santa Fe, NM shows a house and corral here. The homestead was patented in 1885 and has been identified as being one of the largest ranches in northwest New Mexico at the time.

Management Goal:

Manage to protect and preserve Rock House-Nestor Martin Homestead ACECs cultural resource and interpretive value.

Management Prescriptions:

1. No Surface Occupancy management constraint on new and leased oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Continue to acquire all non-federal minerals.
4. Acquire easements.
5. New ROWs in ACEC must be placed in existing ROW/easement disturbance. Coordinate with ROW holders on maintenance and use of existing easements.

6. Continue to implement Closed OHV Designation.
7. Continue to implement Class II VRM Designation.
8. Close: fuelwood cutting/sales, vegetation modification, grazing and surface disturbing activities.
9. Continue designation as Rock House-Nestor Martin Homestead ACEC.
10. Prepare and implement CRMP.
11. Conduct Class III and ethnographic/ethnographic inventories.
12. Prepare HABS documentation and conduct stabilization of house and other features.
13. Prepare interpretive brochure and sign the site for public visitation.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Designate noise receptor points.

SANTOS PEAK

Site Description:

There are a total of 128 acres within the boundary of the Santos Peak ACEC, all of which are both public land (BLM) and federal mineral acres.

Santos Peak is an isolated mesa between Muñoz and Carrizo Canyons in the eastern portion of the FFO. Here in 1704, the Roque de Madrid campaign met the Navajo in battle on August 12th. An unknown number of Navajo were killed or injured, while five soldiers were wounded. Madrid could not take the mesa and the battle was considered a victory for the Navajo.

Santos Peak is important in the early history of the San Juan Basin and the contact between two cultures. It monuments both the Spanish colonization of the American Southwest and the tenacity of the native people to retain their life ways and homeland.

Current and proposed development affects the experience of those coming to Santos Peak, and the surrounding area, for traditional or recreational uses.

Management Goal:

Manage for proactive long-term protection and preservation of Santos Peak ACECs cultural and natural resources.

Management Prescriptions:

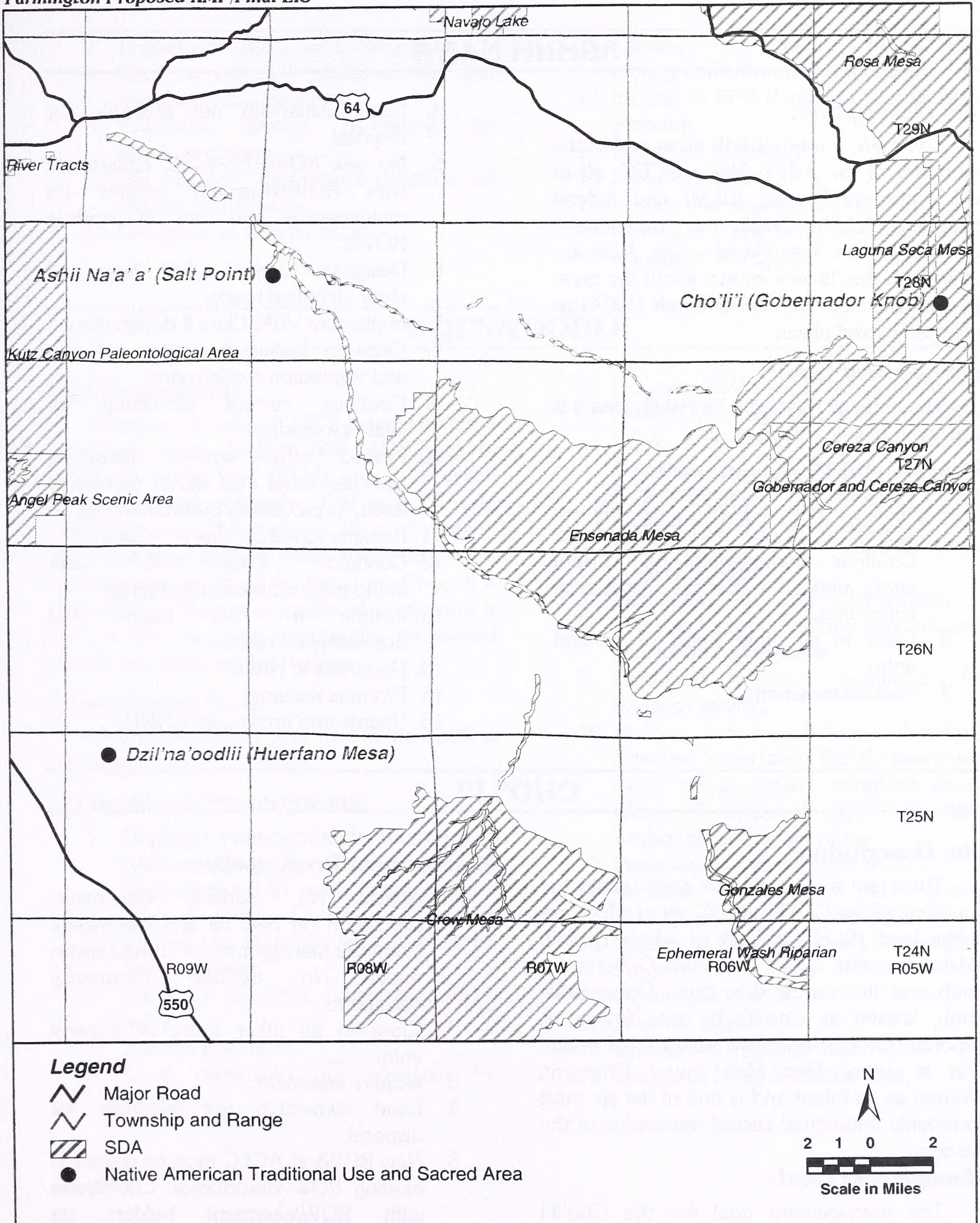
1. No Surface Occupancy management constraint on new and currently leased oil and gas acreage.
2. Close to all other forms of mineral entry.
3. Acquire easements.
4. New ROWs in ACEC must be placed in existing ROW/easement disturbance. Coordinate with ROW holders on maintenance and use of existing easements.
5. Implement Limited OHV designation and close identified roads.
6. Continue to implement Class II VRM designation.
7. Close: fuelwood cutting/sale and vegetation modification.
8. Continue current livestock grazing permitting.
9. Restrict other surface disturbing activities to previously disturbed areas.
10. Continue designation as Santos Peak ACEC.
11. Prepare and implement CRMP.
12. Conduct Class III and ethnographic/historic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.

NATIVE AMERICAN TRADITIONAL USE AND SACRED AREAS

General Description

The FFO area has been occupied by various Native American groups for the last 10,000 years. The Ute, Jicarilla Apache, and Navajo tribes all have recent ties to the area, while connections with the Zuni, Hopi, and Rio Grande pueblos are earlier and less well understood.

The areas within this category are of cultural importance to current occupants of the San Juan Basin and surrounding areas.



Map N-6: Native American Traditional Use and Sacred Areas

ASHIIH NAA'A

Site Description:

There are a total of 640 acres within the boundary of the Ashiih Naa'a ACEC, all of which are public land (BLM) and federal minerals. Ashiih Naa'a is traditionally associated with the Navajo Salt Woman. Other than this, little is known about the area. It is identified by Van Valkenburgh (1974) as a Navajo sacred place.

Management Goal:

The management goal for Ashiih Naa'a is protection of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management of current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Rename as Ashiih Naa'a' ACEC.
12. Conduct Class III and ethnographic/historic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.

CHO'LI'I

Site Description:

There are a total of 360 acres within the boundary of the Cho'li'i ACEC, all of which are public land (BLM) and all of which contain federal minerals. Cho'li'i contains Gobernador Knob and the surrounding area. Gobernador Knob, known as Cho'li'i by the Navajo, is important in their narrative accounts of origin. This is where First Man found Changing Woman as an infant and is one of the six most commonly mentioned sacred mountains of the Navajo.

Management Goal:

The management goal for the Cho'li'i (Gobernador Knob) ACEC will be the protection and preservation of cultural, visual, and social values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management of current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.

7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. No surface disturbance outside of existing disturbance.
11. Designate as Cho'li'i ACEC.
12. Conduct Class III and ethnographic/historic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Identify as Noise Sensitive Area. Stricter standards may apply.

DZIL'NA'OODLII

Site Description:

There are a total of 3,702 acres within the boundary of the Dzil'na'oodlii ACEC, all of which are public land (BLM) and all of which contain federal minerals. Dzil'na'oodlii was previously named Huerfano Mesa. Huerfano Mesa is a large isolated mesa which dominates the landscape south of the San Juan River. It is important in Navajo accounts of origin and is one of the six most commonly mentioned sacred mountains of the Navajo.

Management Goal:

The management goal for Dzil'na'oodlii is protection of cultural values.

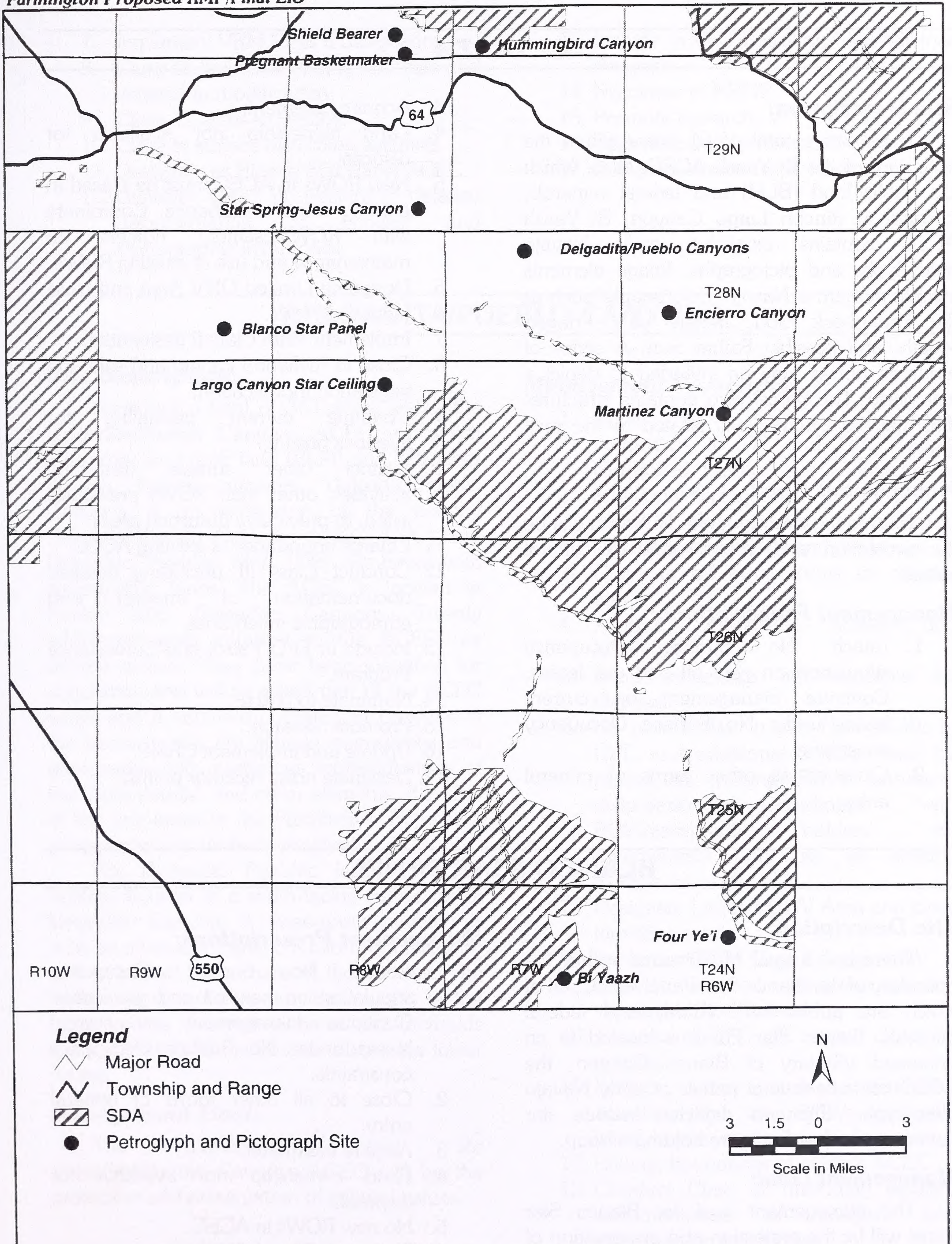
Management Prescriptions:

1. Continue management of current leases under No Surface Occupancy constraints for 37 acres federal surface top of mesa. Continue Controlled Surface Use management constraint on rest of acreage.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in 37 acres of ACEC. New ROWs must be placed in existing ROW disturbance on remaining acreage. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas. Close 37 acres of ACEC to other surface disturbing activities.
11. Designate as Dzil'na'oodlii ACEC.
12. Conduct Class III and ethnographic/historic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Identify as Noise Sensitive Area.

PETROGLYPH AND PICTOGRAPH SITES

General Description

Petroglyphs and pictographs are common within the FFO area and vary greatly in image, size, time period, and culture. The ACECs designated and described in this section are associated with time periods from Anasazi through historic. They have been designated to protect the variety of images, especially Anasazi and early Navajo, that exist throughout the area.



Map N-7: Petroglyph and Pictograph Sites

BI YAAZH

Site Description:

There are a total of 61 acres within the boundary of the Bi Yaazh ACEC, all of which are public land (BLM) and federal minerals. Located in Rincon Largo Canyon, Bi Yaazh ACEC contains extensive early Navajo petroglyphs and pictographs. Image elements include numerous Navajo 'holy people' such as the Humpback God, female ye'i, Fringed Mouth, and possibly Father Sun. A series of mounted horses may be intended to depict a war party. The parcel also contains structures that may be ceremonially related to the rock art.

Management Goal:

The management goal for Bi Yaazh will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Enlarge boundaries of existing ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Designate noise receptor points.

BLANCO STAR PANEL

Site Description:

There are a total of 20 acres within the boundary of the Blanco Star Panel ACEC, all of which are public land (BLM) and federal minerals. Blanco Star Panel is located in an unnamed tributary of Blanco Canyon, the ACEC contains several panels of early Navajo petroglyphs. Elements depicted include star patterns, a bat, and a figure holding a hoop.

Management Goal:

The management goal for Blanco Star Panel will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. No new ROWs in ACEC.
6. Designate Closed OHV Area.

7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Close 15 acres to grazing.
10. Close to surface disturbing activities.
11. Designate as Blanco Star Panel ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.
17. Designate noise receptor points.

DELGADITA/PUEBLO CANYONS

Site Description:

There are a total of 361 acres within the Delgadita/Pueblo Canyons ACEC, of which 329 acres are public land (BLM) and 329 acres contain federal minerals. Delgadita/Pueblo Canyons is an expansion of the existing Delgadita/Pueblo Canyons ACEC (DPC) and Delgadito Pueblito SMA (DP) combined with surrounding lands. The ACEC is located in Pueblo and Delgadita Canyons. Twenty additional acres adjacent to the ACEC are private surface. They have been identified for acquisition and will be made part of the ACEC when and if acquired. Located in canyons of the same names are Navajo petroglyphs and pictographs with numerous representations of the 'holy people' and other elements. It is one of the few areas in the Farmington FO where pictographs outnumber petroglyphs.

The Delgadito Pueblito is built on an isolated boulder in a south-facing cul-de-sac of Delgadito Canyon. A three-room pueblito is built on a boulder top and a two-room masonry unit is located at the base of the boulder. The lower rooms probably provided access to the upper rooms. A series of hand and footholds are also carved in the boulder above the lower rooms.

Management Goal:

The management goal for Delgadita/Pueblo Canyons ACEC will be the protection and preservation of cultural values.

Management Prescriptions:

1. Apply No Surface Occupancy constraints to DP and DPC. Apply Controlled Surface Use constraints to additional acreage.
2. Attach No Surface Occupancy stipulation on new oil and gas leases.
3. Close to all other forms of mineral entry.
4. Acquire non-federal surface and easement.
5. Land ownership not available for disposal.
6. No new ROWs in DP. New ROWs in DPC and additional acreage must be placed in existing ROW/ easement disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROW/easements.
7. Designate Limited OHV Area and close identified roads.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale and vegetation modification.
10. 10 acres of DPC will remain closed to grazing.
11. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
12. Enlarge boundaries of existing ACEC.
13. Conduct Class III (including detailed documentation of images) and ethnographic inventories.

14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Update and implement CRMP.
18. Designate noise receptor points at defined sites-DP and DPC
19. Conduct stabilization and maintenance.
20. Continue to manage for public visitation.

ENCIERRO CANYON

Site Description:

There are a total of 80 acres within the boundary of the Encierro Canyon ACEC, of which 75 acres are public land (BLM) and all of which contain federal minerals. Encierro Canyon is located primarily at the bottom of Encierro Canyon. The ACEC contains extensive panels of Anasazi and early Navajo petroglyphs and pictographs along the canyon walls.

Management Goal:

The management goal for Encierro Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Close 10 acres to grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Encierro Canyon ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Update and implement CRMP.

FOUR YE'I

Site Description:

There are a total of 40 acres within the boundary of the Four Ye'i ACEC, all of which are public land (BLM) and federal minerals. Four Ye'i ACEC is located in an unnamed tributary of Largo Canyon. The ACEC contains several panels of early Navajo petroglyphs, including one with four ye'is in a row.

Management Goal:

The management goal for Four Ye'i will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.

2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Closed to grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Four Ye'i ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Prepare and implement CRMP.

HUMMINGBIRD CANYON

Site Description:

There are a total of 130 acres within the boundary of the Hummingbird Canyon ACEC, of which none are public land (BLM) and 33 acres contain federal minerals. Most of this ACEC lies on state of New Mexico lands and has been identified for acquisition. Hummingbird Canyon ACEC is located in a small unnamed tributary of Gobernador Canyon. Along the northern side of the canyon are numerous petroglyph panels that are associated with the Anasazi occupation of the area. One of the most distinctive image is that of a hummingbird.

Management Goal:

The management goal for Hummingbird Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Management listed would be implemented upon acquisition of non-federal surface and minerals.
2. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
3. Close to all other forms of mineral entry.
4. Acquire non-federal and surface easement.
5. Land ownership not available for disposal.
6. No new ROWs in ACEC.
7. Designate Closed OHV Area.
8. Implement VRM Class II designation.
9. Close to fuelwood cutting and sale and vegetation modification.
10. Continue current grazing.
11. Close to surface disturbing activities.
12. Designate Hummingbird Canyon ACEC.
13. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
14. Include in FFO Patrol and Surveillance Program.
15. Nominate to NRHP.
16. Promote research.
17. Prepare and implement CRMP.

LARGO CANYON STAR CEILING

Site Description:

There are a total of 28 acres within the boundary of the Largo Canyon Star Ceiling ACEC, all of which are public land (BLM) and federal minerals. Largo Canyon Star Ceiling ACEC is located in an unnamed tributary of Largo Canyon. This ACEC contains a rockshelter overhand which has early Navajo pictographs in the form of stars painted on the ceiling. Along the canyon wall nearby are several Navajo Petroglyph panels.

Management Goal:

The management goal for Largo Canyon Star Ceiling will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Largo Canyon Star Ceiling ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Prepare and implement CRMP.

MARTINEZ CANYON

Site Description:

There are a total of 50 acres within the boundary of the Martinez Canyon ACEC, all of which are public land (BLM) and federal minerals. Located near the junction of Martinez and Carrizo Canyons, Martinez Canyon ACEC contains an array of both Anasazi and Navajo petroglyphs and pictographs. Anasazi elements include long-necked birds, anthropomorphic figures, spirals, foot prints, geometric designs, and dot patterns. Navajo elements include images of the Hero Twins and other holy people. The site also includes the remains of a Navajo pueblito with little remaining masonry, and a buried storage feature.

Management Goal:

The management goal for Martinez Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.

5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Enlarge boundaries of existing ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Prepare and implement CRMP.

PREGNANT BASKETMAKER

Site Description:

There are a total of 8 acres within the boundary of the Pregnant Basketmaker ACEC, all of which are public land (BLM) and federal minerals. Located in Escarbada Canyon, a tributary of Gobernador Canyon, Pregnant Basketmaker ACEC includes a Petroglyph panel with the images of three humans, possibly a family. One adult is pregnant and the baby is in position to be delivered. A series of baby footprints appear to be walking up the wall next to the figure.

Management Goal:

The management goal for Pregnant Basketmaker will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area and close identified roads.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Close fenced area to grazing. Continue current grazing on remainder of area.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Pregnant Basketmaker ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Prepare and implement CRMP.

SHIELD BEARER

Site Description:

There are a total of 35 acres within the boundary of the Shield Bearer ACEC, all of which are public land (BLM) and all of which contain federal minerals Located in a side canyon of Gobernador Canyon, Shield Bearer ACEC contains several pictographs that exhibit characteristics of Pueblo VI images. Images include handprints, a red circle with six 'rays' or 'arrows', and anthropomorphic features. The ACEC is named after a pictograph of a human figure holding a shield decorated with six feathers. The shield is surrounded with a red fringe.

Management Goal:

The management goal for Shield Bearer will be the protection and preservation of cultural values.

Management Prescriptions:

1. Attach No Surface Occupancy stipulation on new oil and gas leases. Continue management on current leases under No Surface Occupancy constraints.
2. Close to all other forms of mineral entry.
3. Acquire easement.
4. Land ownership not available for disposal.
5. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
6. Designate Limited OHV Area.
7. Implement VRM Class II designation.
8. Close to fuelwood cutting and sale and vegetation modification.
9. Continue current permitting for livestock grazing.
10. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
11. Designate as Shield Bearer ACEC.
12. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
13. Include in FFO Patrol and Surveillance Program.
14. Nominate to NRHP.
15. Promote research.
16. Prepare and implement CRMP.

STAR SPRING–JESUS CANYON

Site Description:

There are a total of 393 acres within the boundary of the Star Spring–Jesus Canyon ACEC, of which 149 acres are public land (BLM) and 149 acres contain federal minerals. The Star Spring–Jesus Canyon ACEC contains a rock overhang with early Navajo pictographs in the form of stars painted on the ceiling. Several early Navajo pictographs are also located along the nearby canyon walls. Also located within the boundaries are a cliff type Navajo pueblito, a boulder pueblito, and numerous petroglyph and pictograph panels.

Management Goal:

The management goal for Star Spring–Jesus Canyon will be the protection and preservation of cultural values.

Management Prescriptions:

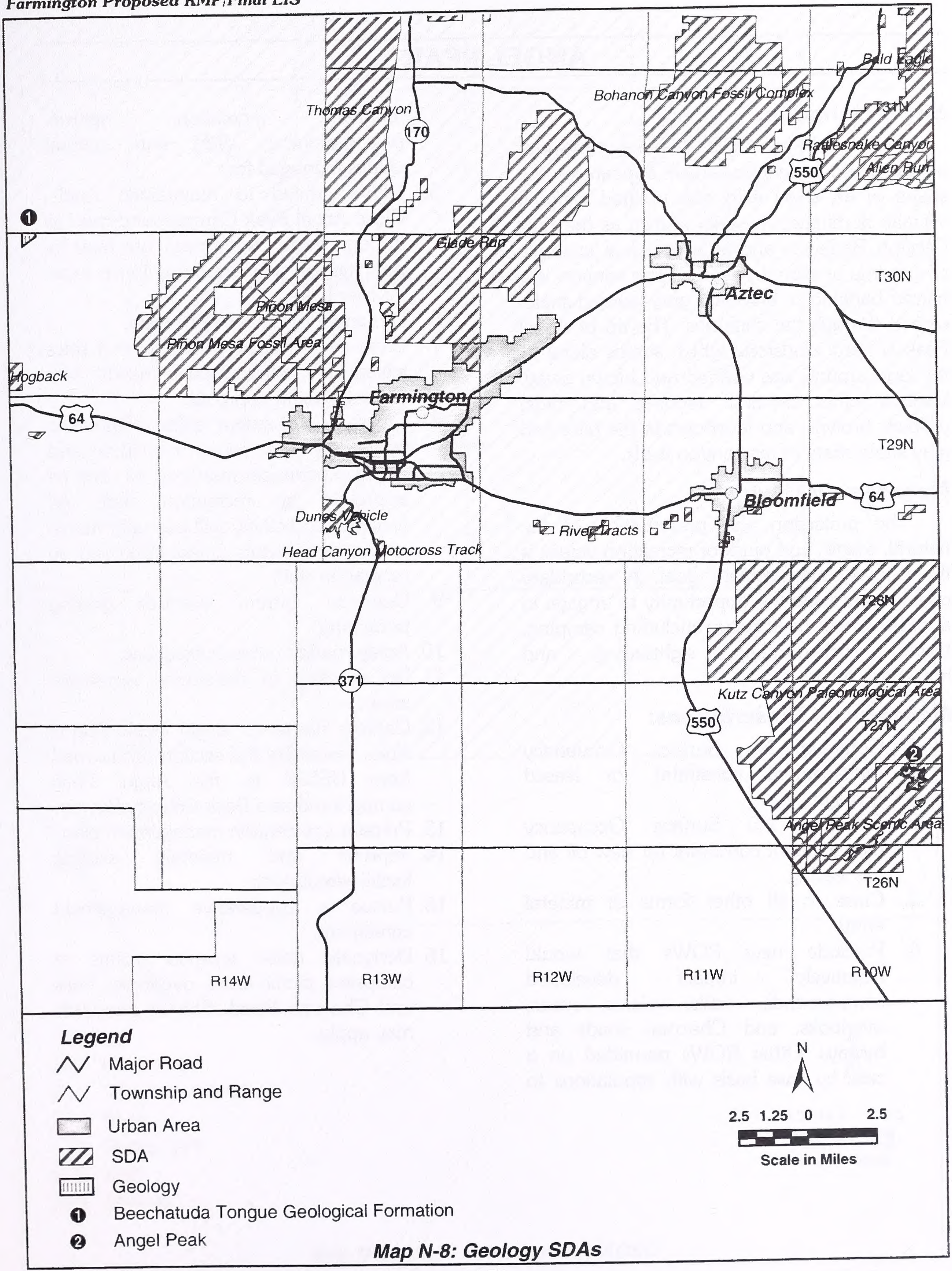
1. Manage 25 acres under No Surface Occupancy constraints. Apply Controlled Surface Use constraint to remainder of acreage.
2. Attach No Surface Occupancy stipulation on new oil and gas leases.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.

5. Acquire non-federal surface and easement.
6. Land ownership not available for disposal.
7. New ROWs in ACEC must be placed in existing ROW disturbance. Coordinate with ROW/easement holders on maintenance and use of existing ROWs.
8. Designate Limited OHV Area.
9. Implement VRM Class II designation.
10. Close to fuelwood cutting and sale and vegetation modification.
11. Continue current grazing.
12. Restrict other surface disturbing activities, other than ROWs previously listed, to previously disturbed areas.
13. Enlarge boundaries and rename as Star Spring–Jesus Canyon ACEC.
14. Conduct Class III (including detailed documentation of images) and ethnographic inventories.
15. Include in FFO Patrol and Surveillance Program.
16. Nominate to NRHP.
17. Promote research.
18. Prepare and implement CRMP.
19. Conduct HABS documentation. Conduct stabilization and maintenance.

2. GEOLOGY

GENERAL DESCRIPTION

The FFO area encompasses some formations of geologic significance that are used for scientific purposes, and also contribute to the visual impact of the area. The SDAs in this section have been designated to protect two formations from damage by surface and subsurface disturbing activities.



Map N-8: Geology SDAs

ANGEL PEAK

Site Description:

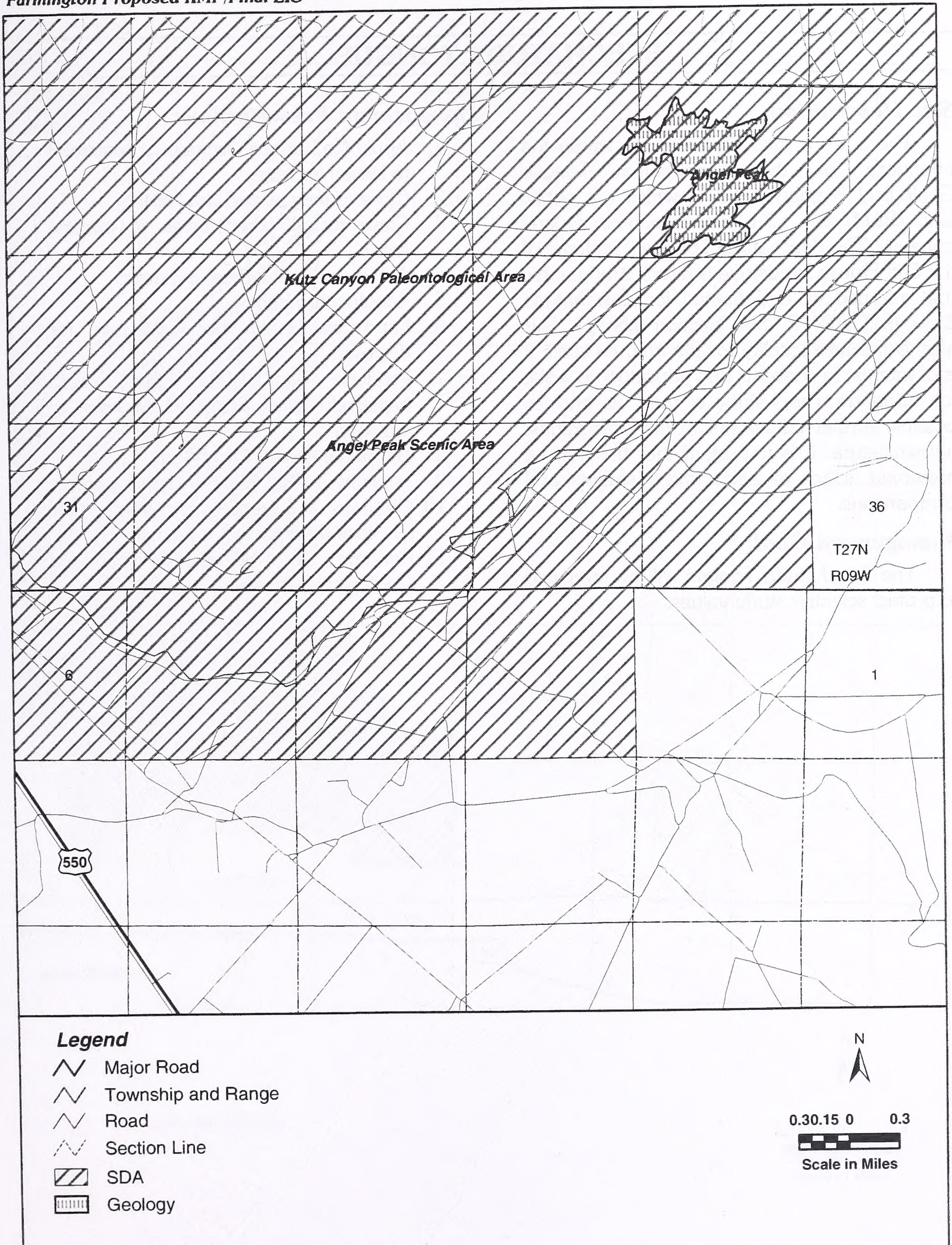
The Angel Peak ACEC (Geology) includes a rare geologic feature which appears as the shape of an angel with one uplifted wing. It visually dominates the area known as the Kutz Canyon Badlands and is an unusual example of extreme erosional patterns. The canyon is a barren badland of blue and gray-layered shale, carved through the centuries. The tip of Angel Peak is hard sandstone which stands alone as the land around was washed and blown away. Various other mineral deposits add reds, yellows, browns, and lavenders to the blue and gray shale strata of the canyon walls.

Management Goal:

The protection and preservation of the natural, scenic, and outdoor recreation values is the primary management goal. A secondary goal is to provide the opportunity to engage in a wide variety of activities including camping, hiking, rockhounding, sightseeing, and horseback riding.

Management Prescriptions:

1. Continue No Surface Occupancy management constraint for leased acreage.
2. Continue No Surface Occupancy management constraint for new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Preclude new ROWs that would negatively impact developed campgrounds, trails, picnic areas, overlooks, and Chacoan roads and byways. Other ROWs permitted on a case by case basis with stipulations to maintain recreation, natural, paleontological, VRM and cultural values managed for.
5. OHVs limited to maintained roads. Close Angel Peak Campground road to through traffic. Authorized use may be permitted in wash bottoms ion a case-by-case basis.
6. Designate as Class I VRM Area.
7. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
8. Close to vegetative sales. Vegetative treatments must benefit recreation and visual experiences managed for, and be approved by recreation staff. All reclamation activity will use only native species seed/plants unless approved by recreation staff.
9. Continue current livestock grazing permitting.
10. Apply roaded natural objectives.
11. No shooting in developed recreation area.
12. Change name to Angel Peak Scenic Area. Nominate the section of the road from US550 to the Angel Peak campground as a Back Country Byway.
13. Prepare a recreation management plan.
14. Improve and maintain existing facilities/trail/signs.
15. Pursue a cooperative management agreement.
16. Designate noise receptor points at campsites, picnic areas, overlooks, trails and Chacoan Road. Stricter standards may apply.



Map N-9: Angel Peak Geology ACEC

BEECHATUDA TONGUE

Site Description:

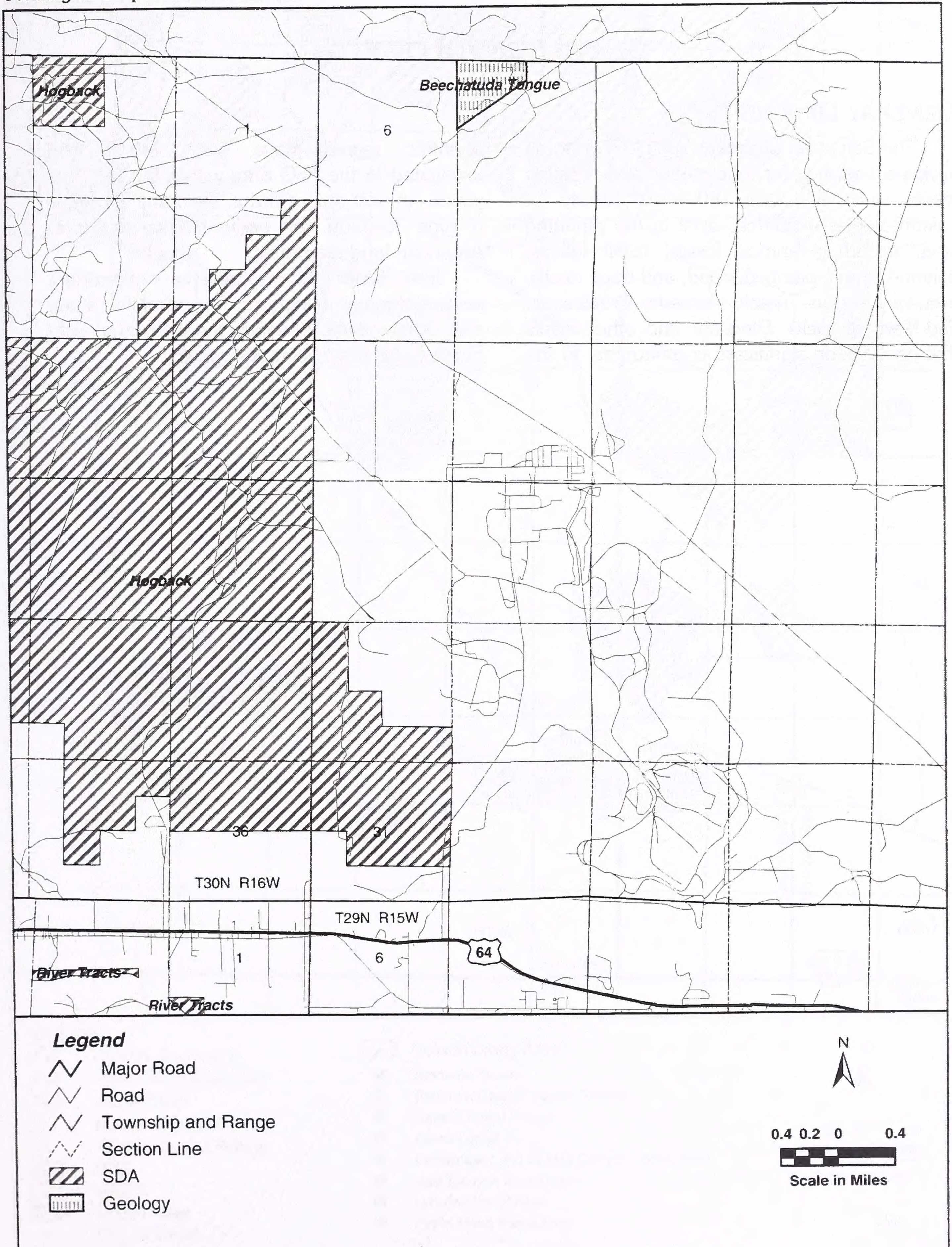
There are a total of 100 acres within the boundary of the Beechatuda Tongue Geological Formation, all of which are public land (BLM) and all of which contain federal minerals. The Beechatuda Tongue (Geology) of the Cliff House Sandstone is a rock stratigraphic unit mapped in, and named for, Beechatuda Draw in T.30N, R.15W, Section 5;NW/4. This area is the type locality for the unit. As such, it is of interest to scientists and educators as a site for comparison and study of the unit, and for possible further refinement of the stratigraphic nomenclature. It is important that the unit be preserved intact to allow these studies and comparisons.

Management Goal:

The Beechatuda Tongue will be managed to protect scientific study values.

Management Prescriptions:

1. Apply No Surface Occupancy constraint to leased acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire all non-federal minerals.
5. Acquire easement.
6. Land ownership not available for disposal.
7. Preclude new ROWs that would negatively affect protected resource or purpose.
8. Designate Closed OHV Area.
9. Implement VRM Class IV designation.
10. Continue current permitting for livestock grazing.
11. Rename as Beechatuda Tongue Geological Formation.



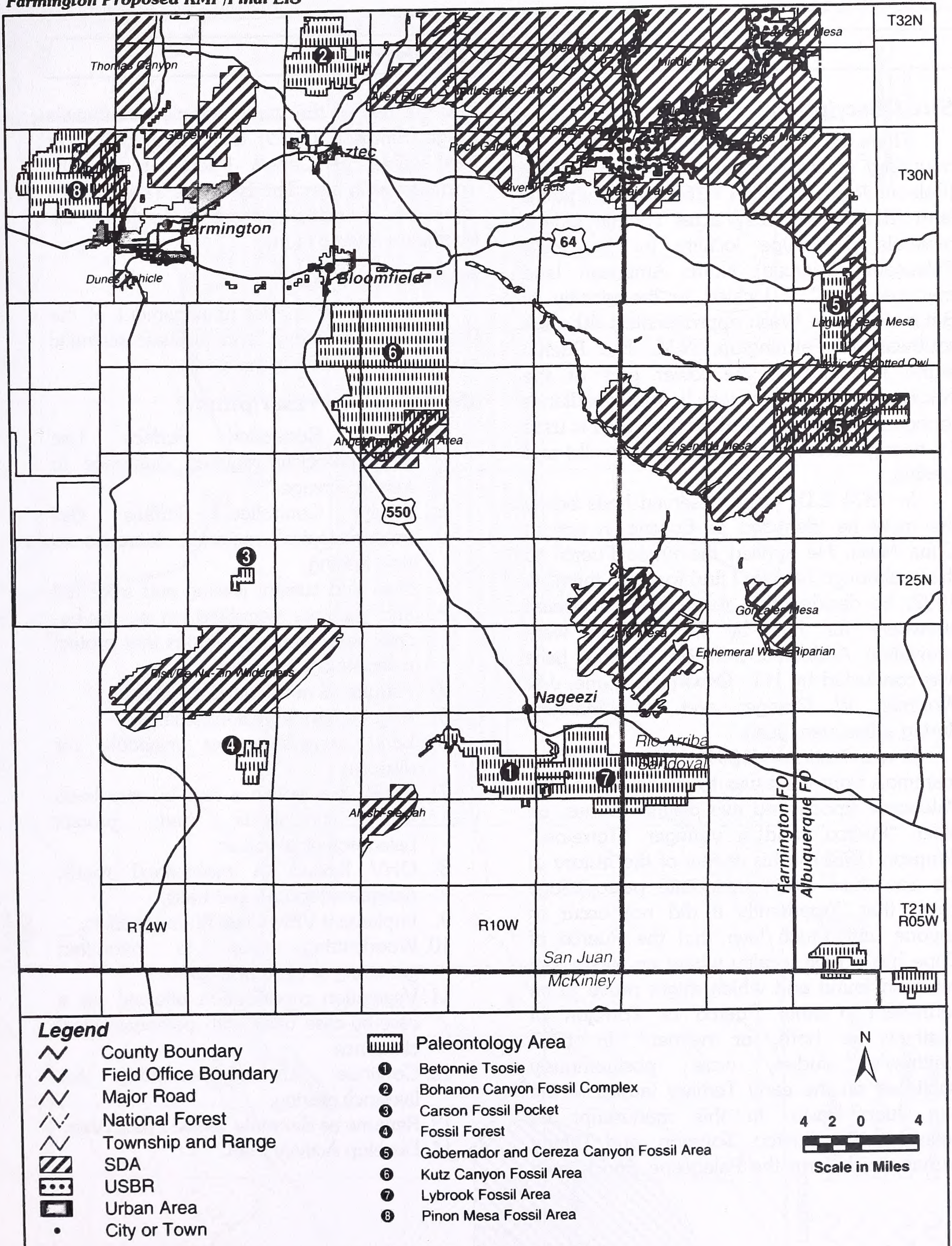
Map N-10: Beechatuda Tongue Geological Formation

3. PALEONTOLOGY

GENERAL DESCRIPTION

The San Juan Basin has been known to be an important area for mammalian and reptilian fossils since the late 1800s. A variety of paleontological resources exist in the planning area, including animal fossils, fossil leaves, palynomorphs, petrified wood, and trace fossils, occurring in the Triassic, Jurassic, Cretaceous, and Tertiary rocks. Dinosaur and other fossils that have made significant contributions to the scientific record have been found and excavated in the FFO area within the past five years. At least one of these, Betonnie Tsosie, is a type location for early Paleocene North American land mammals.

In order to preserve important paleontological resources for scientific study and other public benefits, the following eight Fossil Areas have been designated.



Map N-11: Paleontology Areas

BETONNIE TSOSIE

Site Description:

There are a total of 11,849 acres within the boundary of the Betonnie Tsosie Fossil Area (Paleontology), of which 7,267 acres are public land (BLM) and 7,267 acres contain federal minerals. The type locality for the early Paleocene (Puercan) North American land mammal "age" is located in the vicinity of Betonnie Tsosie Wash approximately 40 miles southeast of Farmington, N.M. The Puerco fauna is found in the lower part of the Nacimiento Formation which forms badlands topography along the washes. The area is used for energy development (oil and gas wells) and grazing.

In 1874 E.D. Cope observed beds below the rocks he identified as Eocene in age at Cuba Mesa. He applied the name Puerco to them, although he didn't find fossils in them. In 1882, he decided that fossils being collected elsewhere for him by D. Baldwin were equivalent. Additional work on "Puerco" beds was conducted by H.F. Osborn, C. Earle, J.L. Wortman, W. Granger, and W.D. Matthew during subsequent years.

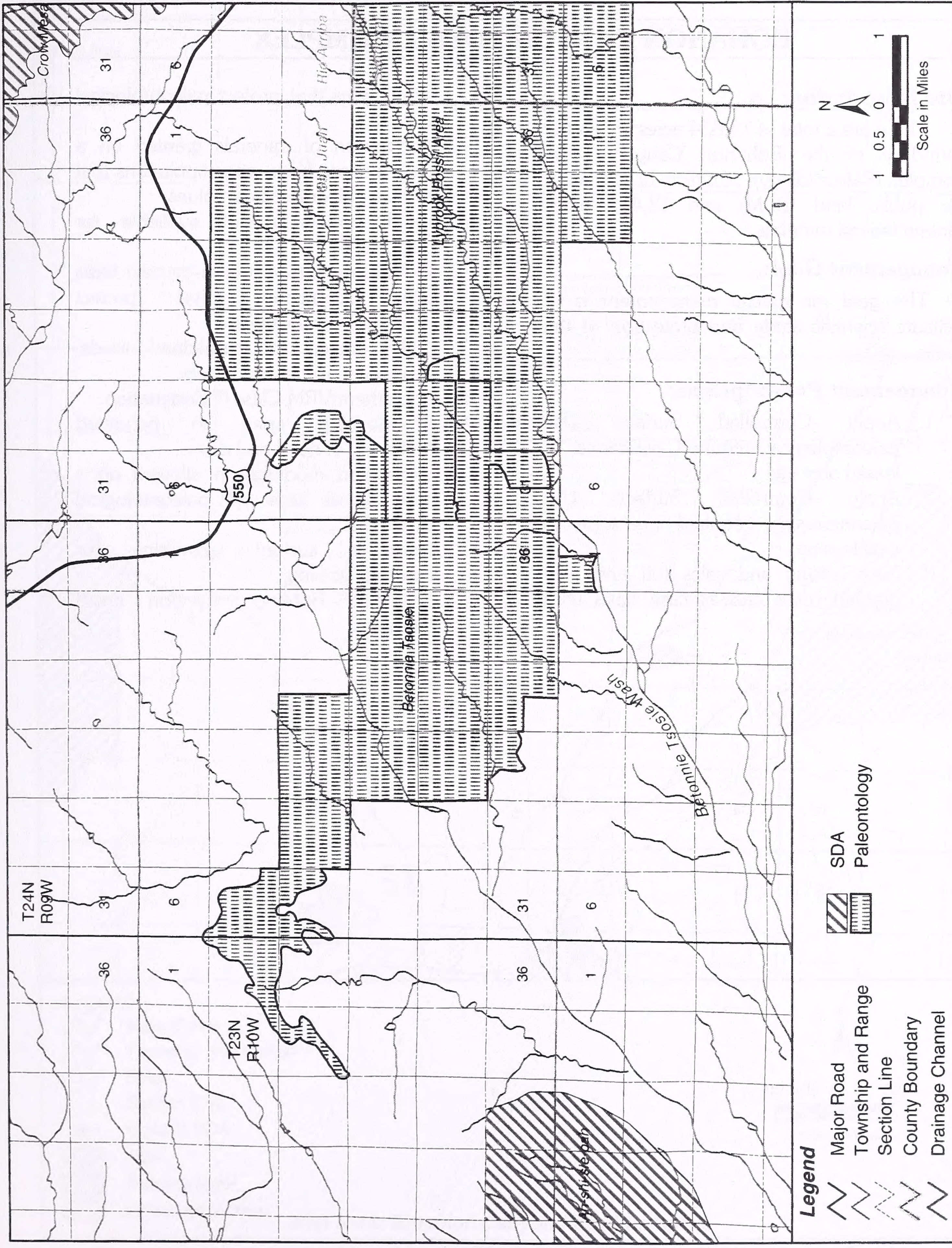
It was Matthew (1897) who divided the mammals from what was to be defined as the Paleocene Epoch into two distinct faunas: an older "Puerco" and a younger "Torrejon." Simpson (1981) in his review of the history of the San Juan Basin vertebrate paleontology noted that "Apparently it did not occur to anyone until much later that the Puerco of Cope has a type locality where no fossils had yet been found and which might prove to be equivalent to either 'Puerco' or 'Torrejon' of Matthew, or both, or neither." In 1937 Matthew's studies were posthumously published on the early Tertiary faunas of the San Juan Basin. In this manuscript he delineated the Puerco, Torrejon, and Tiffany faunas which form the Paleocene Epoch such that the rest of the world adopted Matthew's usage. Simpson (1959) demonstrated that at least some of Cope's Puerco is actually Torrejonian in age. The Betonnie Tsosie group represents principal collecting localities for Matthew's Puerco fauna.

Management Goal:

The goal for special management of the Betonnie Tsosie group is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New and current leasing and sales (oil and gas) are permitted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquire all non-federal minerals.
5. Acquire non-federal inholdings.
6. Land ownership not available for disposal.
7. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
8. OHV limited to maintained roads, designated routes, and trails.
9. Implement VRM Class III designation.
10. Woodcutting open to permitted gathering of dead and down.
11. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
12. Continue current permitting for livestock grazing.
13. Rename as Betonnie Tsosie Fossil Area.
14. Develop Activity Plan.



Map N-12: Betonnie Tsosie Fossil Area

BOHANON CANYON FOSSIL COMPLEX

Site Description:

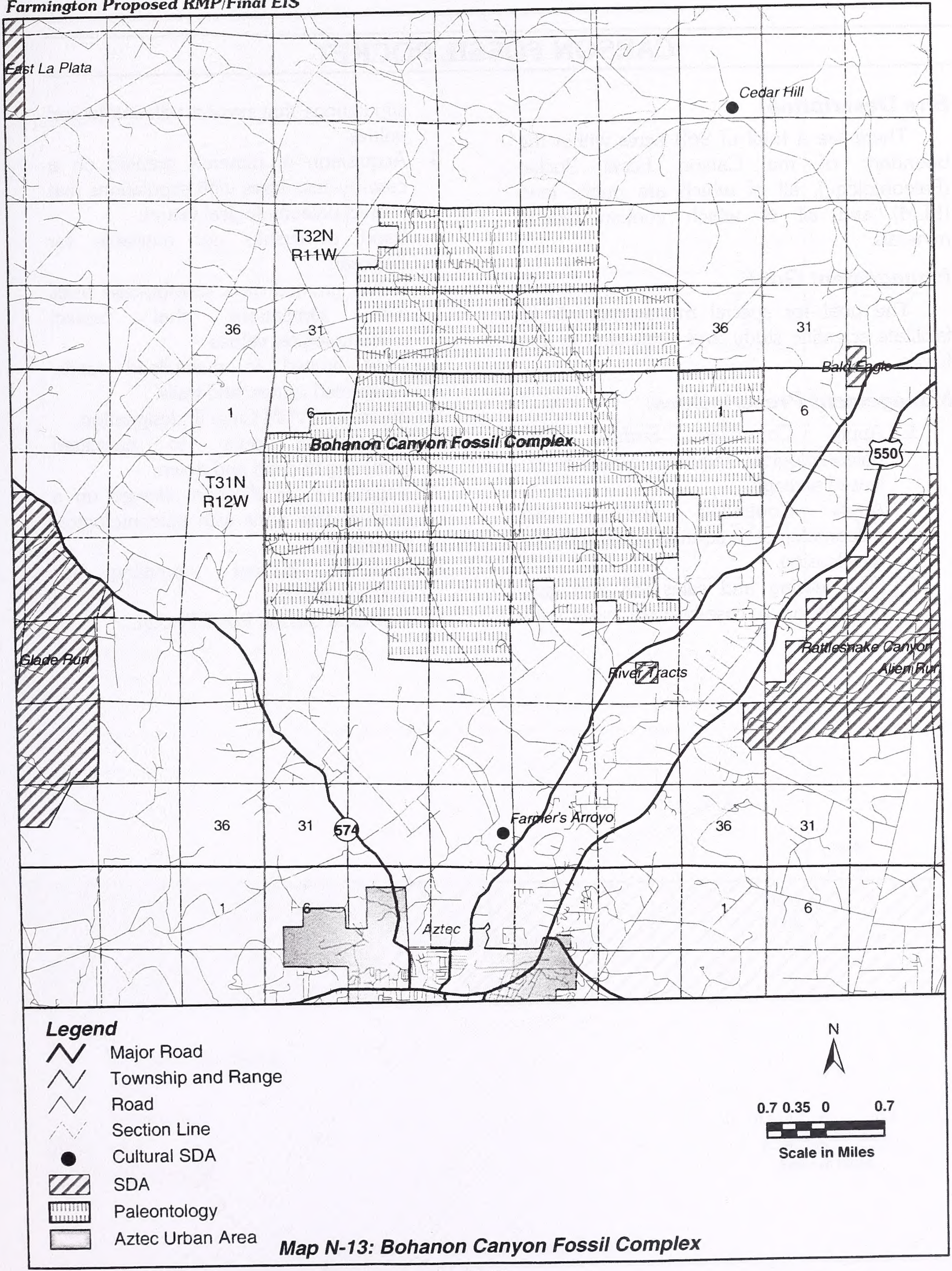
There are a total of 13,834 acres within the boundary of the Bohanon Canyon Fossil Complex (Paleontology), of which 12,380 acres are public land (BLM) and 12,468 acres contain federal minerals.

Management Goal:

The goal for special management is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Land ownership not available for disposal.
6. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
7. OHV limited to maintained roads, designated routes, and trails.
8. Implement VRM Class III designation.
9. Woodcutting open to permitted gathering of dead and down.
10. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
11. Continue current permitting for livestock grazing.
12. Delineate Bohanon Canyon Fossil Complex.



Map N-13: Bohanon Canyon Fossil Complex

CARSON FOSSIL POCKET

Site Description:

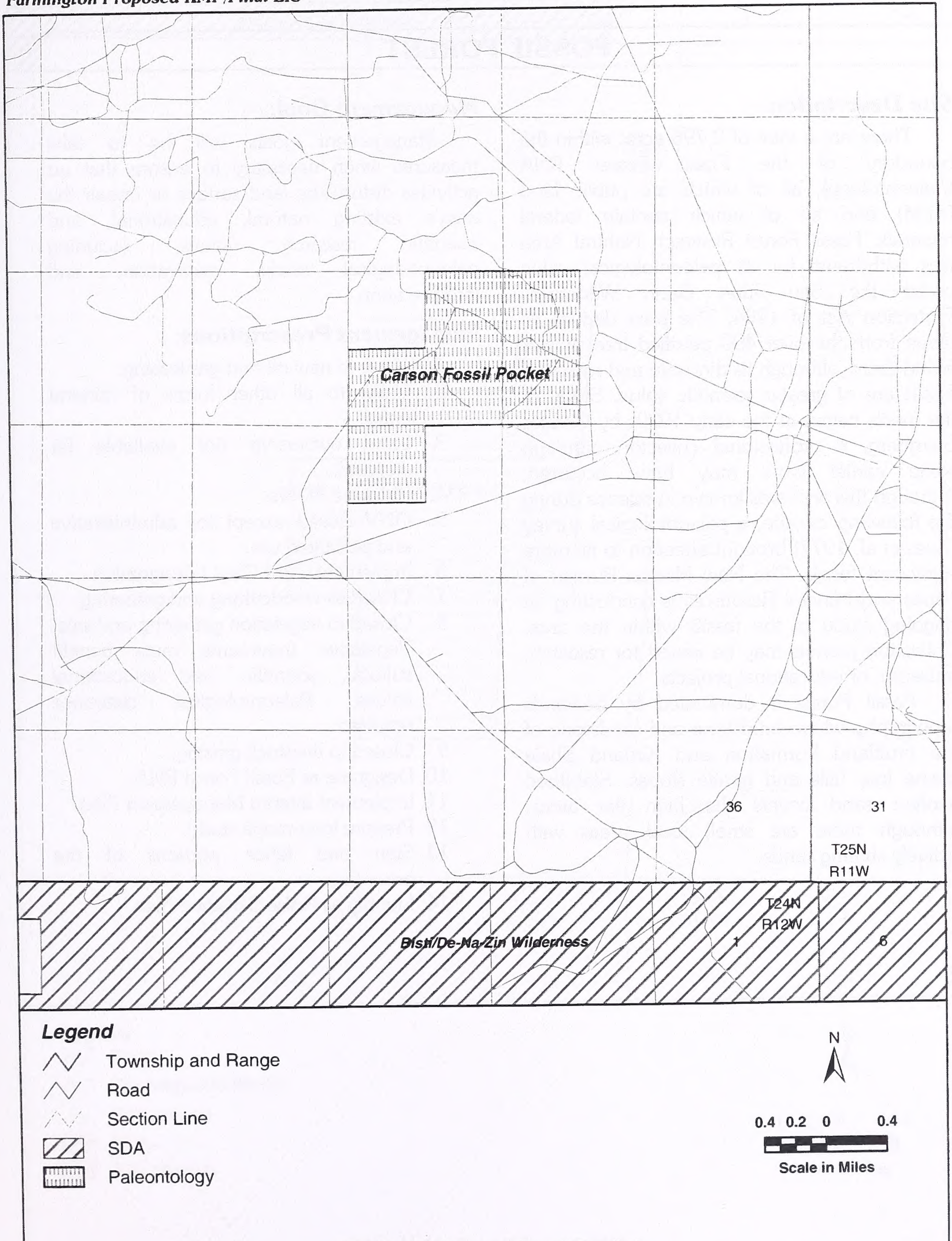
There are a total of 968 acres within the boundary of the Carson Fossil Pocket (Paleontology), all of which are public land (BLM) and all of which contain federal minerals.

Management Goal:

The goal for special management is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Land ownership not available for disposal.
6. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
7. OHV limited to maintained roads, designated routes, and trails.
8. Implement VRM Class III designation.
9. Woodcutting open to permitted gathering of dead and down.
10. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
11. Continue current permitting for livestock grazing.
12. Delineate Carson Fossil Pocket.



Map N-14: Carson Fossil Pocket

FOSSIL FOREST

Site Description:

There are a total of 2,796 acres within the boundary of the Fossil Forest RNA (Paleontology), all of which are public land (BLM) and all of which contain federal minerals. Fossil Forest Research Natural Area was withdrawn for its paleontological value under the San Juan Basin Wilderness Protection Act of 1984. The area derives its name from the over 400 petrified tree stumps found there, although its dinosaur and mammal fossils are of greater scientific value. Study of the fossils began in the early 1920s by Charles Sternberg, a professional collector, although some earlier work may have occurred. Although this area was known in science during the following decade, a paleontological survey (Kues et al. 1977) brought attention to its more significant fossils. The New Mexico Bureau of Mines and Mineral Resources is conducting an ongoing study of the fossils within the area. Collection permits may be issued for research, museum, or educational projects.

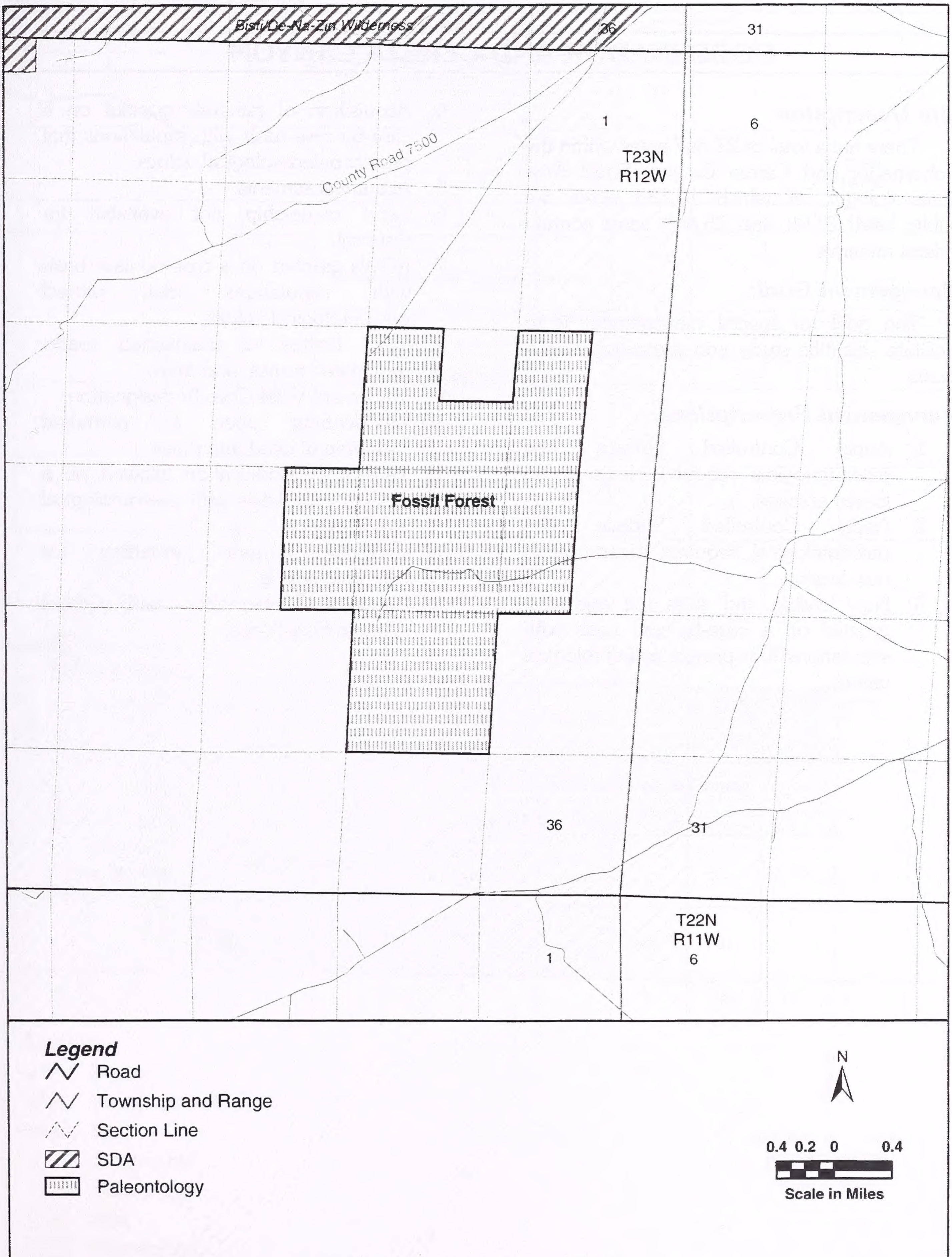
Fossil Forest is dominated by badlands topography where mudstone and sandstone of the Fruitland Formation and Kirtland Shale create low hills and gentle slopes. Stabilized aeolian sand covers the high flat areas, although there are small local areas with actively shifting sands.

Management Goal:

Management goals will be to take measures when necessary to ensure that no activities disturb the land surface or impair the area's existing natural, educational, and scientific research values, including paleontological study, excavation, and interpretation.

Management Prescriptions:

1. Close to new oil and gas leasing.
2. Close to all other forms of mineral entry.
3. Land ownership not available for disposal.
4. Preclude ROWs.
5. OHV closed except for administrative and permitted use.
6. Implement VRM Class I designation.
7. Closed to woodcutting and gathering.
8. Closed to vegetation gathering and sale. Vegetative treatments must benefit cultural, scientific, and educational values. Paleontological clearance required.
9. Closed to livestock grazing.
10. Designate as Fossil Forest RNA.
11. Implement Interim Management Plan.
12. Prepare long-range study.
13. Sign and fence portions of the boundary.
14. Identify as Noise Sensitive Area.



Map N-15: Fossil Forest RNA

GOBERNADOR AND CEREZA CANYON

Site Description:

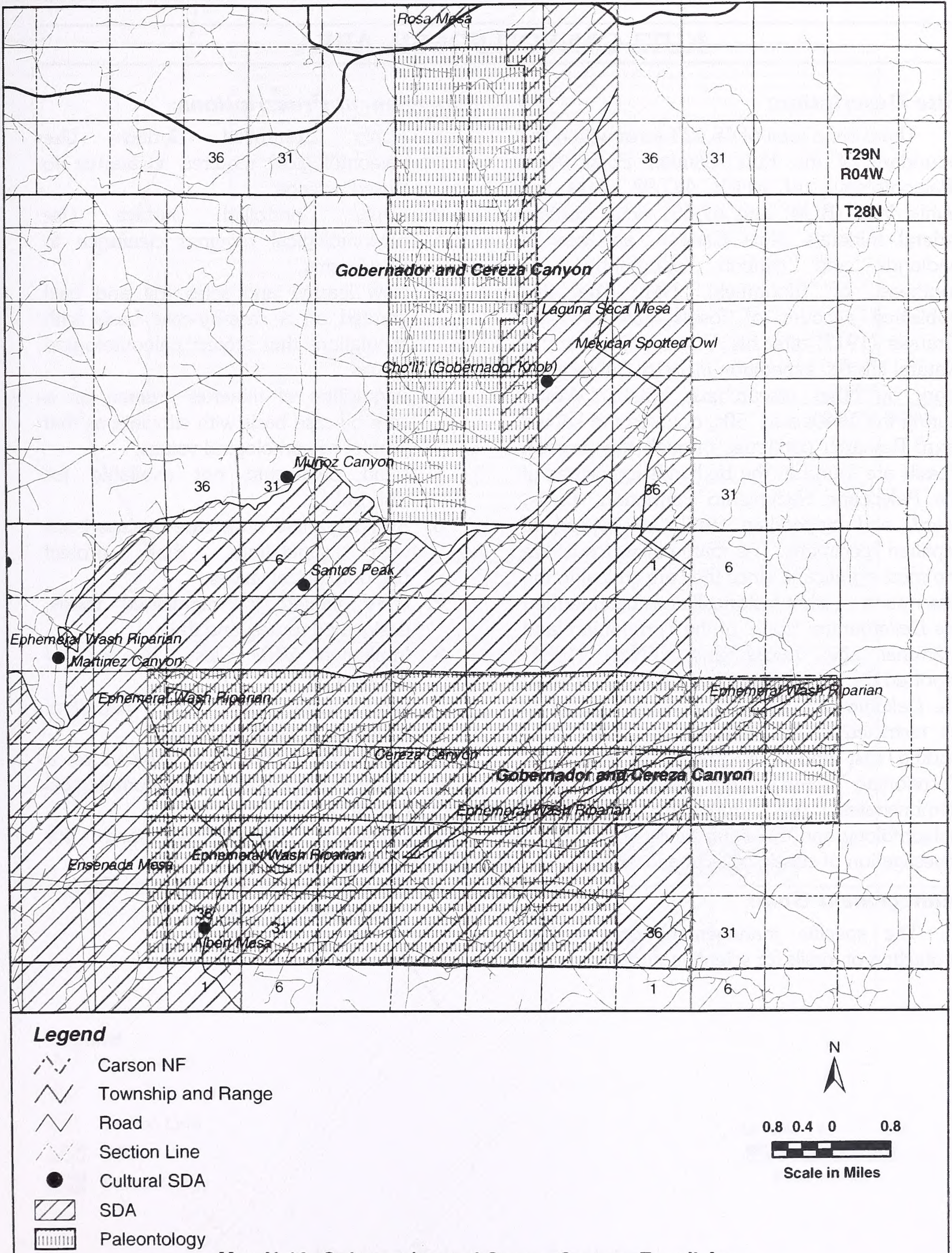
There are a total of 27,647 acres within the Gobernador and Cereza Canyon Fossil Area (Paleontology), of which 13,333 acres are public land (BLM) and 25,643 acres contain federal minerals.

Management Goal:

The goal for special management is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Acquire easements.
6. Land ownership not available for disposal.
7. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
8. OHV limited to maintained roads, designated routes, and trails.
9. Implement VRM Class IV designation.
10. Woodcutting open to permitted gathering of dead and down.
11. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
12. Continue current permitting for livestock grazing.
13. Delineate Gobernador and Cereza Canyon Fossil Area.



Map N-16: Gobernador and Cereza Canyon Fossil Area

KUTZ CANYON FOSSIL AREA

Site Description:

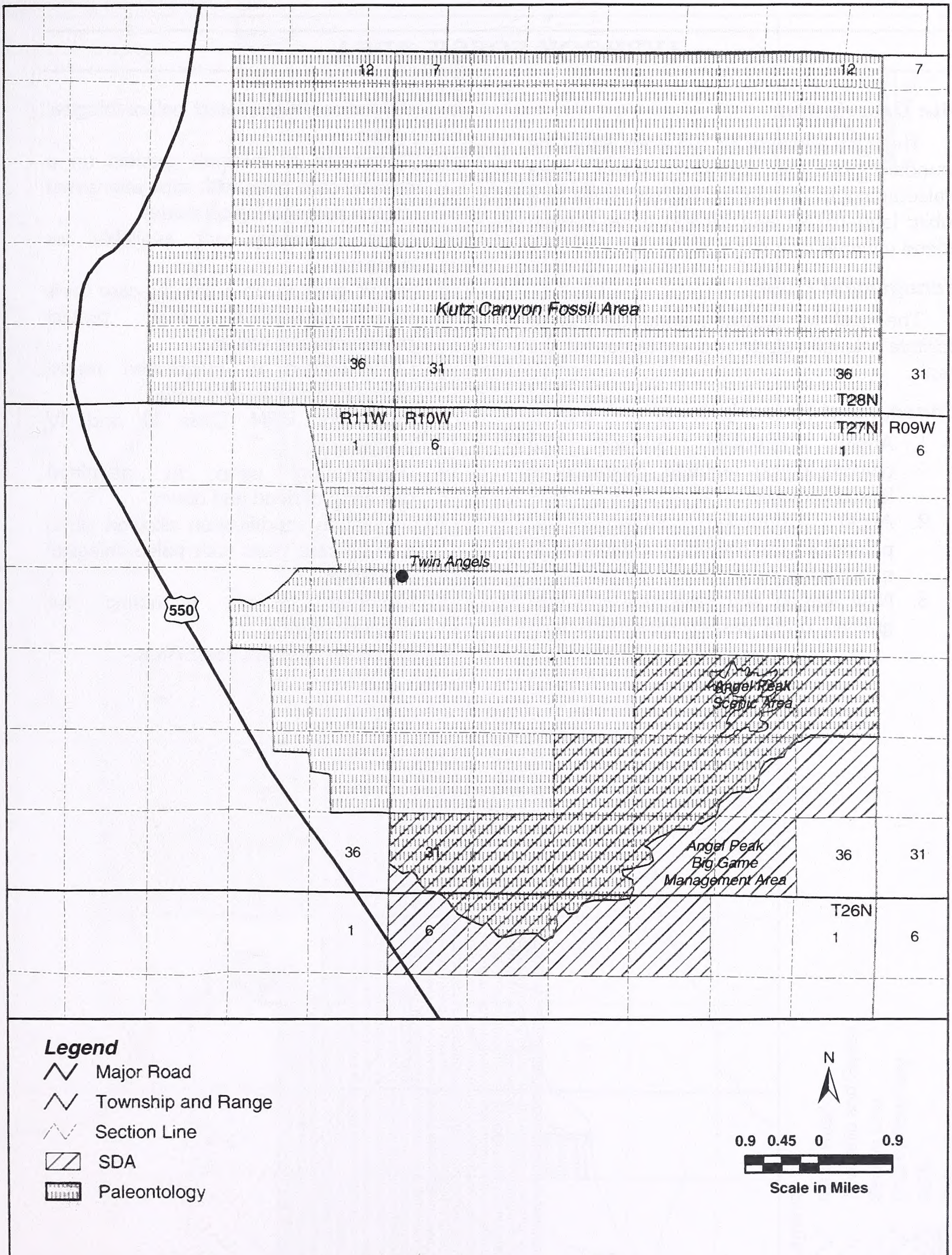
There are a total of 48,423 acres within the boundary of the Kutz Canyon Fossil Area (Paleontology), of which 47,098 acres are public land (BLM) and 47,661 acres contain federal minerals. Kutz Canyon, an area of badlands and canyon topography, lies southeast of Bloomfield, NM. The first published account of fossils here was by Granger (1917) after his American Museum of Natural History expedition in 1916. Subsequent work by other researchers, notably Wilson during the 1940s and '50s, doubled the known taxa. Research continues through the present. Fossils are found in the badlands exposures of the Paleocene Nacimiento Formation. Turtle, lizard, and crocodilian fossils are typical of reptilian specimens. The mammalian fossils are the most significant, since they are critical to the description of what historically has been termed the *Deltatherium* 'zone' of the Torrejonian land mammal age. Lucas and O'Neill (1981) reported the first occurrence of *Pantolambda* in the *Deltatherium* 'zone'. Previously thought to be restricted in the *Pantolambda* 'zone', this finding cast doubt on the whole notion of Torrejonian 'zones'. Kutz Canyon therefore demonstrates the dynamic nature of paleontology and the significance of continued investigation of classic collecting localities.

Management Goal:

The specific management goal is the protection of fossils for scientific study.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Land ownership not available for disposal.
6. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
7. OHV limited to maintained roads, designated routes, and trails.
8. Implement VRM Class I,III, and IV designation.
9. Woodcutting open to permitted gathering of dead and down.
10. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
11. Continue current permitting for livestock grazing.
12. Expand and rename as Kutz Canyon Paleontological Area.



Map N-17: Kutz Canyon Fossil Area

LYBROOK FOSSIL AREA

Site Description:

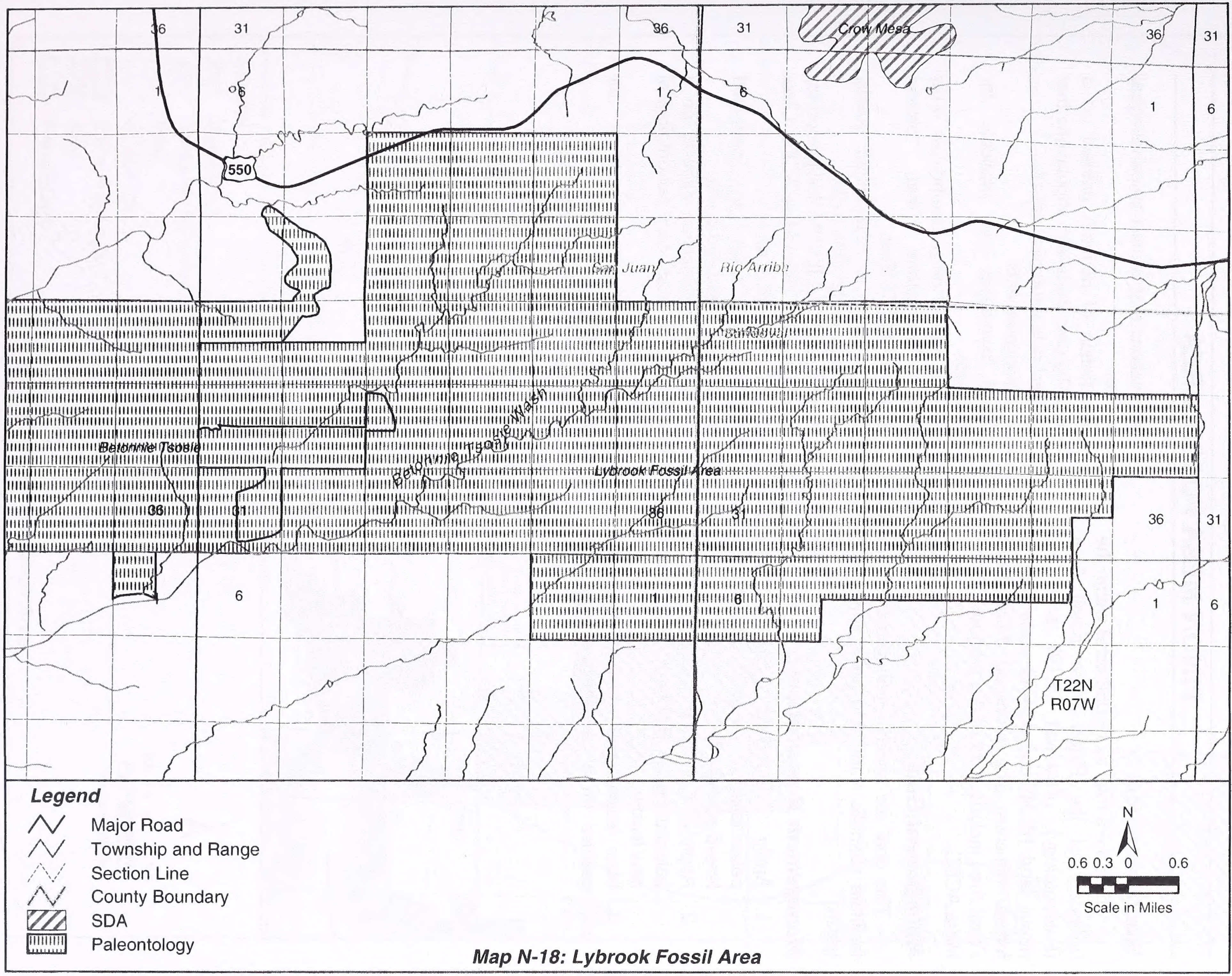
There are a total of 25,703 acres within the boundary of the Lybrook Fossil Area (Paleontology), of which 18,268 acres are public land (BLM) and 19,840 acres contain federal minerals.

Management Goal:

The goal for special management is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Land ownership not available for disposal.
6. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
7. OHV limited to maintained roads, designated routes, and trails.
8. Implement VRM Class III and IV designation.
9. Woodcutting open to permitted gathering of dead and down.
10. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
11. Continue current permitting for livestock grazing.
12. Delineate Lybrook Fossil Area.



Map N-18: Lybrook Fossil Area

PIÑON MESA FOSSIL AREA

Site Description:

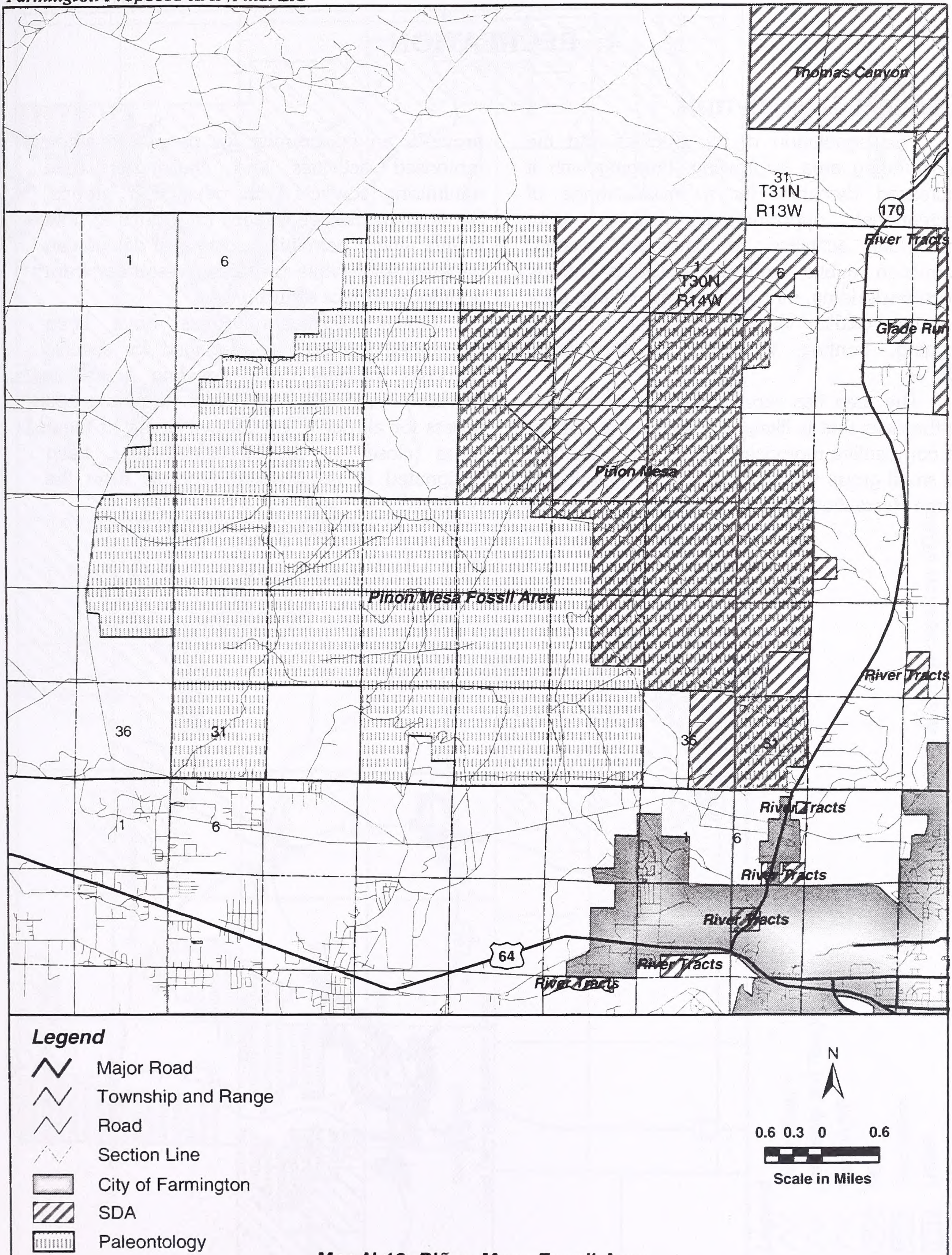
There are a total of 19,052 acres within the boundary of the Piñon Mesa Fossil Area (Paleontology), of which 18,197 acres are public land (BLM) and 19,033 acres contain federal minerals. The proposed Piñon Mesa Fossil Area includes part of the proposed Piñon Mesa ACEC.

Management Goal:

The goal for special management is to facilitate scientific study and protection of the fossils.

Management Prescriptions:

1. Apply Controlled Surface Use paleontological required clearance to leased acreage.
2. Apply Controlled Surface Use paleontological required clearance to new leasing.
3. New leasing and sales (oil and gas) granted on a case-by-case basis with stipulations that protect paleontological values.
4. Acquisition of minerals granted on a case-by-case basis with stipulations that protect paleontological values.
5. Acquire easements.
6. Land ownership not available for disposal.
7. ROWs granted on a case-by-case basis with stipulations that protect paleontological values.
8. OHV limited to maintained roads, designated routes, and trails.
9. Implement Class II VRM designation for acreage inside Piñon Mesa ACEC. Class III for remainder of area.
10. Woodcutting open to permitted gathering of dead and down.
11. Vegetation modification allowed on a case-by-case basis with paleontological clearance.
12. Continue current permitting for livestock grazing.
13. Delineate Piñon Mesa Fossil Area.



Map N-19: Piñon Mesa Fossil Area

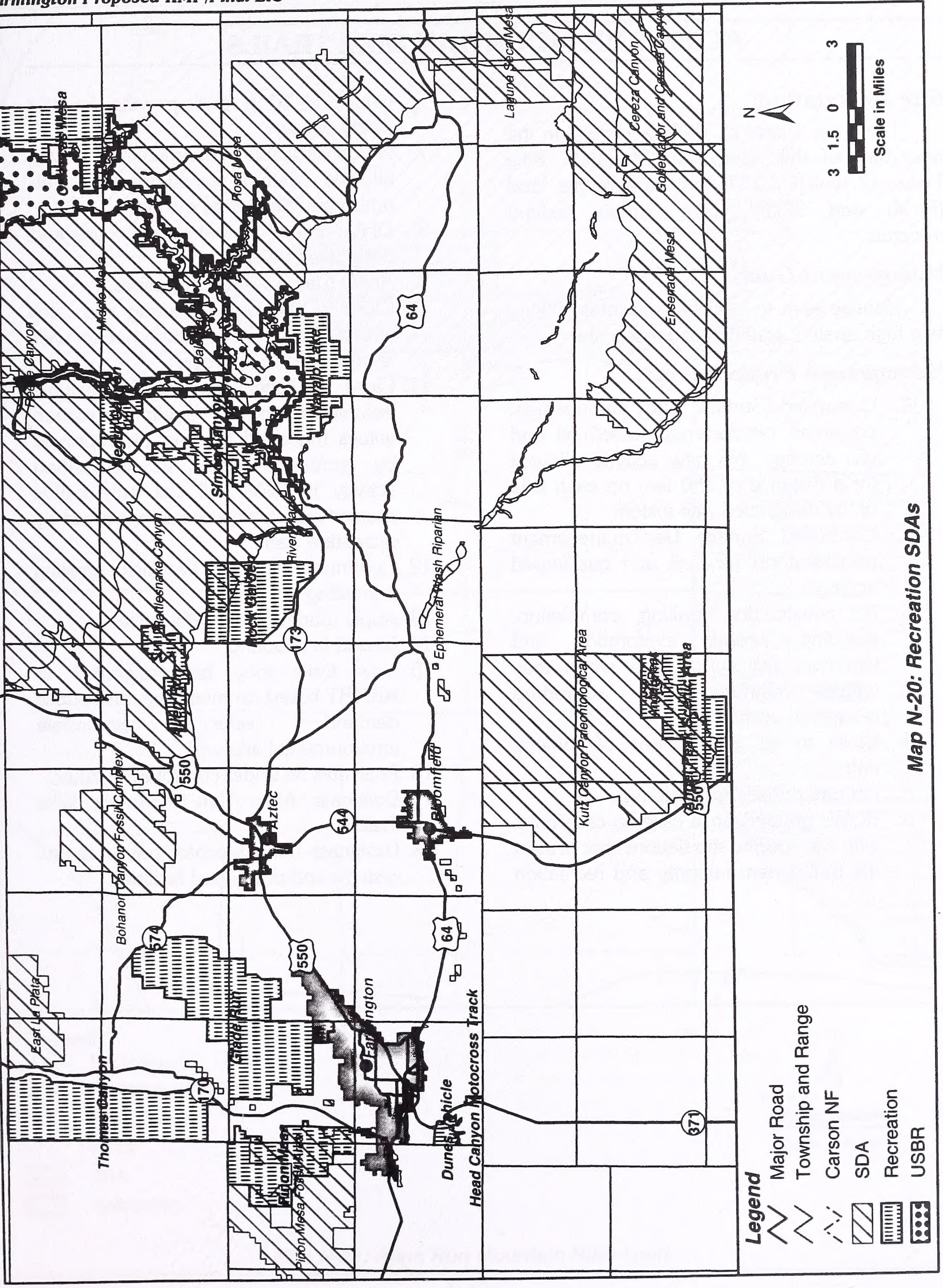
4. RECREATION

GENERAL DESCRIPTION

The population of the tri-cities and the surrounding area is growing, bringing with it increased demands for a broad range of recreational opportunities, ranging from individual activities to organized events. Common public land use activities include horseback riding, mountain biking, hiking, back packing, wildlife viewing, primitive camping, jogging, hunting, photography, and riding OHVs.

The area has received exposure to OHV enthusiasts that is likely to create more interest in competitive motorized events and individual or small group travel by OHVs. Designation of some Recreation Areas that permit OHV access provides an opportunity for people to enjoy motorized activities and challenges while minimizing conflicts with other user groups. Some areas provide a place for groups to hold events where permitting costs and delays can be minimized while protecting resources from additional surface disturbance.

Twelve Recreation Areas have been designated that will be managed for specific purposes, ranging from providing access to primitive outdoor experiences to motorized access for all public land users. Some of these areas close to the tri-cities have been designated in response to requests from the public.



Map N-20: Recreation SDAs

ALIEN RUN MOUNTAIN BIKE TRAILS

Site Description:

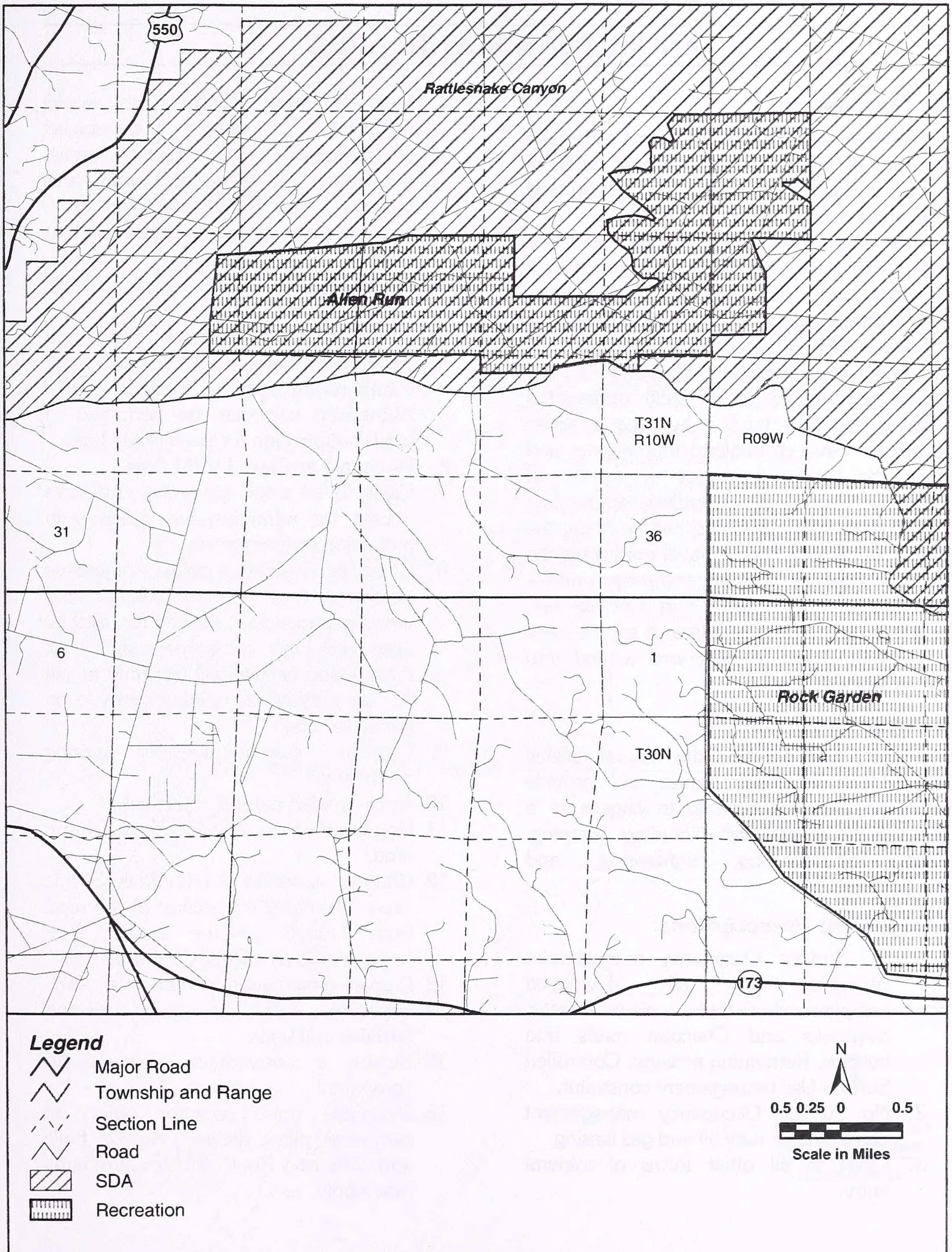
There are a total of 3,334 acres within the boundary of the Alien Run Mountain Bike Trails, of which 3,137 acres are public land (BLM) and 3,334 acres contain federal minerals.

Management Goal:

Manage area to facilitate mountain biking as a high quality recreational experience.

Management Prescriptions:

1. Controlled Surface Use management constraint on currently leased oil and gas acreage. No new activity allowed for a distance of 150 feet on each side of the designated trail system.
2. Controlled Surface Use management constraint on new oil and gas leased acreage.
3. No construction, drilling, completion, plugging, seismic exploration and workover activity allowed when they would interfere with authorized recreation events.
4. Close to all other forms of mineral entry.
5. Acquire non-BLM inholdings.
6. ROWs granted on a case-by-case basis with site specific stipulations that protect the trail system integrity and recreation values in SMA and provide for the safety of users.
7. No construction of maintenance activity allowed when it would interfere with authorized recreation events.
8. OHVs limited to maintained roads and designated trails.
9. Apply Class III VRM Objectives.
10. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
11. Close to vegetative sales. Vegetative treatments must benefit recreation values managed for and be approved by recreation staff. All reclamation activity in SMA will use only native species seeds/plants unless approved by recreation staff.
12. Continue current livestock grazing permitting.
13. Apply roaded natural objectives.
14. Closed to shooting.
15. New trails may be designated in ARMBT based on inventory, and public demand after appropriate environmental analysis.
16. Pets must be under control at all times.
17. Delineate Alien Run Mountain Bike Trails.
18. Designate noise receptor points at trail systems and developed facilities.



Map N-21: Alien Run Mountain Bike Trails

ANGEL PEAK SCENIC AREA

Site Description:

There are a total of 10,226 acres within the boundary of the Angel Peak Scenic Area, of which 8,946 acres are public land (BLM) and 9,952 acres contain federal minerals.

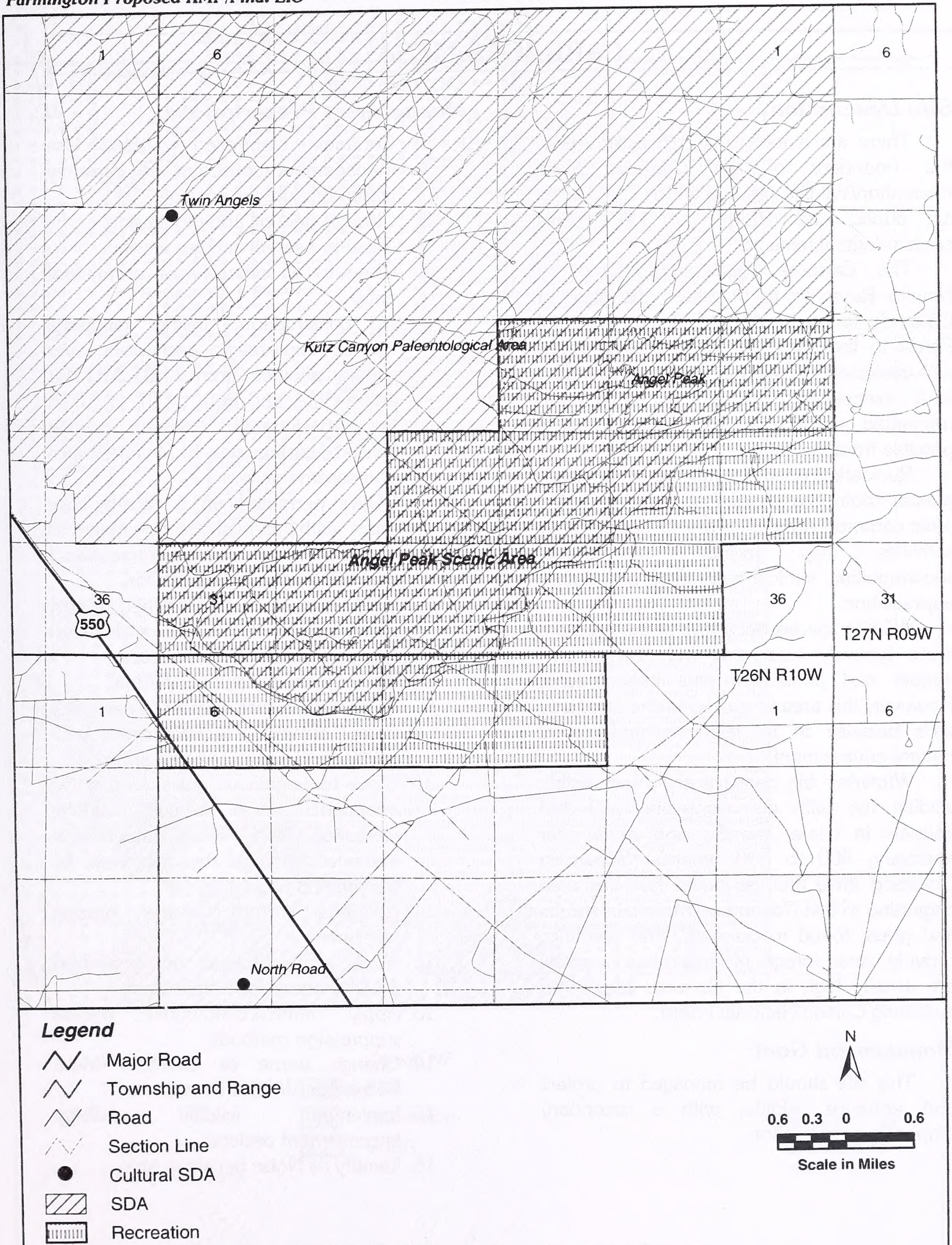
The population of Farmington and the surrounding areas is growing, bringing with it the increased demand for recreational opportunities. Angel Peak is easy to access. The entrance is located along NM State Highway 550, a major transportation artery into the Four Corners region that is currently undergoing widening into four lanes. The area provides spectacular views of badland topography, and allows the public to enjoy a variety of recreational activities, including sightseeing, picnicking, tent camping and hiking. Along the canyon rim, a maintained gravel road takes the visitor to 16 family camping and picnic units—each with a fireplace, table, and concrete pad. Vegetation in the area consists of sparse grass on the hills. Trees are few and twisted into gnarled shapes.

Management Goal:

Protect and preserve the natural, scenic and outdoor recreation values and provide visitors with the opportunity to engage in a wide variety of activities including camping, hiking, rockhounding, sightseeing, and horseback riding.

Management Prescriptions:

1. No Surface Occupancy management constraint at all developed campgrounds, trails, picnic areas, overlooks and Chacoan roads and byways. Remaining acreage: Controlled Surface Use management constraint.
2. No Surface Occupancy management constraint for new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Preclude new ROWs that would negatively impact developed campgrounds, trails, picnic areas, overlooks, and Chacoan roads and byways. Other ROWs permitted on a case by case basis with stipulations to maintain recreation, natural, paleontological, VRM and cultural values managed for.
5. OHVs limited to maintained roads and designated trails. Close Angel Peak Campground road to through traffic. Authorized use may be permitted in wash bottoms ion a case-by-case basis.
6. Designate as Class II VRM Area.
7. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
8. Close to vegetative sales. Vegetative treatments must benefit recreation and visual experiences managed for, and be approved by recreation staff. All reclamation activity will use only native species seed/plants unless approved by recreation staff.
9. Continue current livestock grazing permitting.
10. Apply roaded natural objectives.
11. No shooting in developed recreation area.
12. Change name to Angel Peak Scenic Area. Nominate the section of the road from US550 to the Angel Peak campground as a Back Country Byway.
13. Prepare a recreation management plan.
14. Improve and maintain existing facilities/trail/signs.
15. Pursue a cooperative management agreement.
16. Designate noise receptor points at campsites, picnic areas, overlooks, trails and Chacoan Road. Stricter standards may apply.



Map N-22: Angel Peak Scenic Area

CARRACAS MESA

Site Description:

There are a total of 8,616 acres within the boundary of the Carracas Mesa Recreation/Wildlife Area, of which 7,943 acres are public land (BLM) and 3,201 acres contain federal minerals.

The Carracas Mesa is bordered by Navajo Reservoir to the west, the state of Colorado to the north, and Carson National Forest to the east. It is somewhat removed with restricted access due to the surrounding land ownership, natural landscape and unmarked primitive routes. Public access is possible from the south.

Recreation opportunities are in the semi-private motorized class. Day hunting is the most common activity known to occur. Other activities may include backpacking, snowmobiling, vehicle trail riding, and nature appreciation.

Wildlife species occurring in the area are those typically associated with the piñon–juniper and ponderosa pine habitat type. However, this area is special in the Resource area because of its relatively undisturbed natural environment.

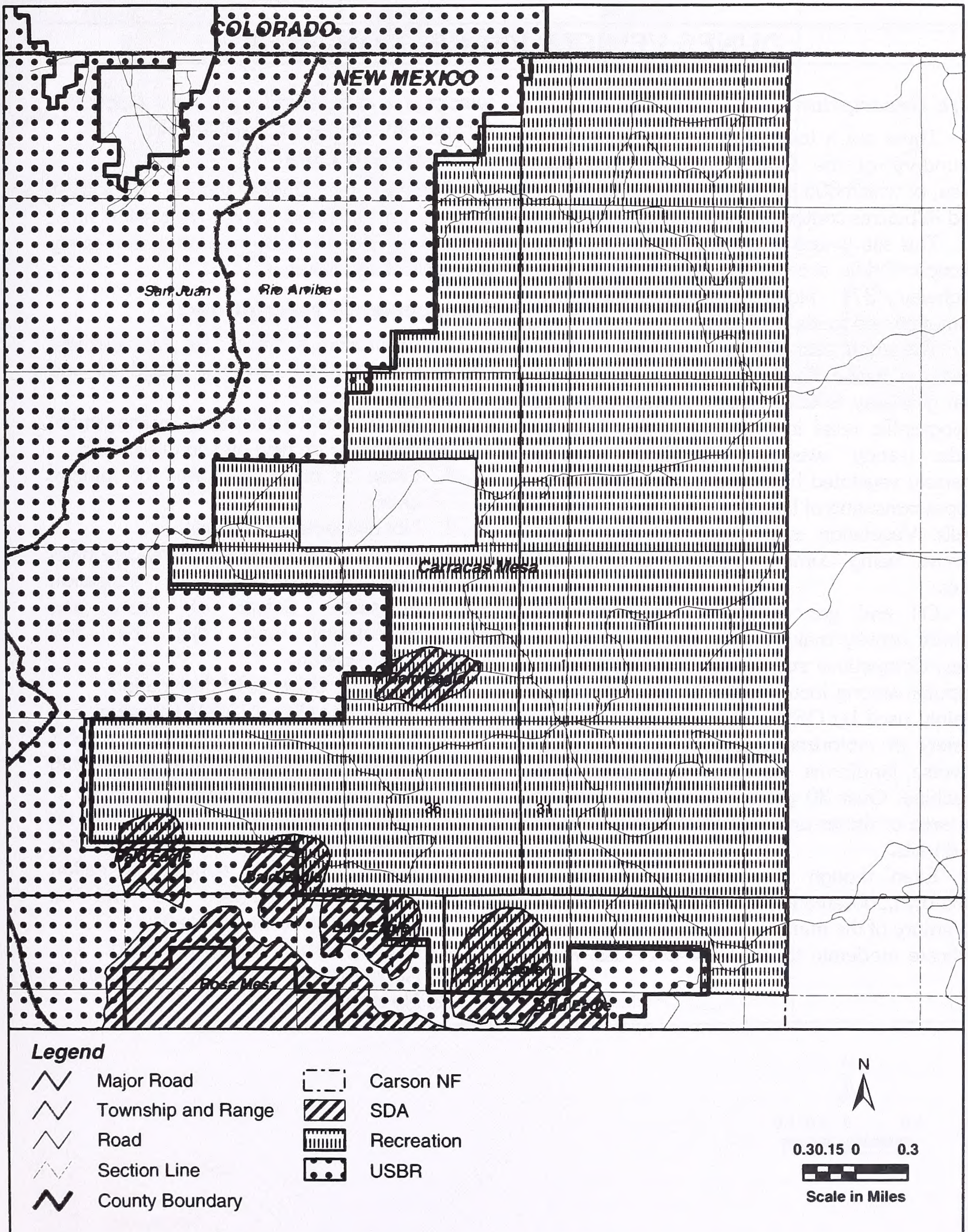
Wintering big game is the most visible wildlife use with elk numbering 150–300 animals in winter months and mule deer averaging 400 to 800 animals. Snows in Colorado drive animals down into this area beginning in late November. Mountain shrubs and grass, found in clearings, and seedlings provide winter forage. Mountain lion numbers are usually high in the Carracas Mesa and adjoining Carson National Forest.

Management Goal:

This site should be managed to protect and enhance wildlife, with a secondary emphasis on recreation.

Management Prescriptions:

1. Continue Controlled Surface Use management constraint on currently leased oil and gas acreage.
2. Close to new oil and gas leasing.
3. Close to new oil and gas leasing.
4. Close to all other forms of mineral entry.
5. No construction, drilling, plugging, seismic exploration and work over activity allowed from 11/01-3/31 for entire SMA and from 04/01 to 07/15 in designated elk calving habitat.Acquire non-BLM inholdings and easements.
6. ROWs permitted on a case-by-case basis with stipulations to maintain optimum wildlife habitat, recreational and VRM values managed for.
7. OHVs limited to maintained roads, designated trails, routes and ways. Apply seasonal OHV closures.
8. Designate as Class II VRM Area.
9. Close to all wood gathering and sales except for administrative needs with wildlife and recreation staff approval.
10. Close to vegetative sales. Vegetative treatments must benefit wildlife, recreation and visual experiences managed for and be approved by wildlife and recreation staff.
11. Continue current livestock grazing retirement.
12. Apply semi-primitive, non-motorized and motorized ROS objectives.
13. Apply limited/conditional wildlife suppression methods.
14. Change name to Carracas Mesa Recreation/Wildlife Area.
15. Implement wildlife habitat improvement projects.
16. Identify as Noise Sensitive Area.



Map N-23: Carracas Mesa Recreation/Wildlife Area

DUNES VEHICLE RECREATION AREA

Site Description:

There are a total of 825 acres within the boundary of the Dunes Vehicle Recreation Area, of which 805 acres are public land (BLM) and 825 acres contain federal minerals.

This site is just south of Farmington, New Mexico. Public access is provided from State Highway 371 along moderate to steep unmaintained roads.

The south, east and west boundaries of the area are well-defined by steep canyon walls that give way to talus slopes. A wide range of topographic relief is available in the form of wide, sandy washes, rock-filled arroyos, sparsely vegetated hills, and moderate to steep slopes consisting of loose rock and solid canyon walls. Vegetation is minimal with the major species being common grasses and juniper trees.

Oil and gas exploration and off-road vehicle activity make up the major use of the area. Competitive events such as hill climbs are popular among local residents, but the area is mainly used by ORV enthusiasts who enjoy a variety of motorized recreation opportunities. Diverse landforms challenge both man and machine. Over 30 years of use has produced an area of dunes and well established hill runs and trails.

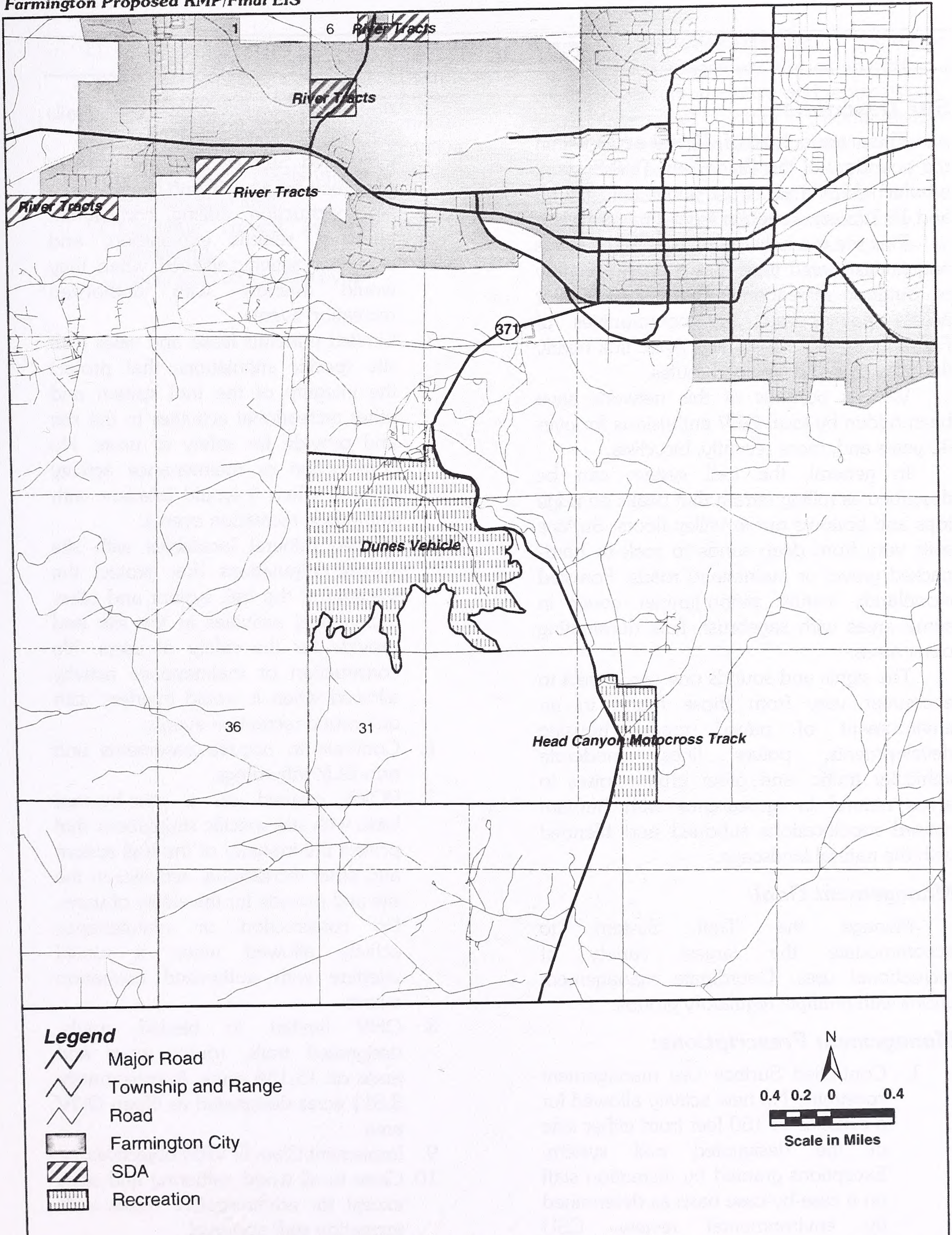
Even though the actual visitor use is unknown, observation of weekend users and inventory of the many well-defined vehicle trails indicate moderate to intensive ORV use. Auto wreckage and scattered trash exist below the escarpment along State Highway 371.

Management Goal:

Manage the Dunes Vehicle Recreation Area as an Off Road Vehicle recreation area, minimizing user conflicts, promoting user safety and protecting resources.

Management Prescriptions:

1. Controlled Surface Use management constraint on currently leased oil and gas acreage.
2. No Surface Occupancy management constraint on new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Not available for disposal.
5. ROW permitted on a case-by-case basis with stipulations and mitigation measures. Safety of users and recreational use will be first consideration.
6. Continue Open OHV designation.
7. Implement Class IV VRM objectives.
8. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
9. Close to vegetative sales except for administrative needs. Vegetation treatments must benefit recreation experiences managed for and be approved by recreation staff.
10. Grazing permits will not be issued.
11. Apply rural recreation ROS objectives.
12. No shooting.



Map N-24: Dunes Vehicle Recreation Area

GLADE RUN

Site Description:

There are a total of 21,544 acres within the boundary of the Glade Run Trail System, of which 17,935 acres are public land (BLM) and 18,796 acres contain federal minerals.

This site is a network of established roads and undesignated trails that contain a variety of outdoor recreation opportunities. Major access points from the communities of Farmington, Flora Vista and Aztec link nearly 40 miles of well-developed routes.

Various portions of this network have been ridden by local ORV enthusiasts for over 40 years and, more recently, bicyclists.

In general, the trail system can be described as rolling terrain that peaks on ridge tops and bottoms out in valley floors. Surface soils vary from deep sands to rock to hard-packed gravel or maintained roads. Forested woodlands feature piñon-juniper cover in some areas with sagebrush flats dominating other areas.

The sights and sounds one can expect to encounter vary from those found in an environment of paved roads, housing developments, power lines, moderate vehicular traffic, and other urban noises to areas natural in appearance with human-caused modifications subdued and blended with the natural landscape.

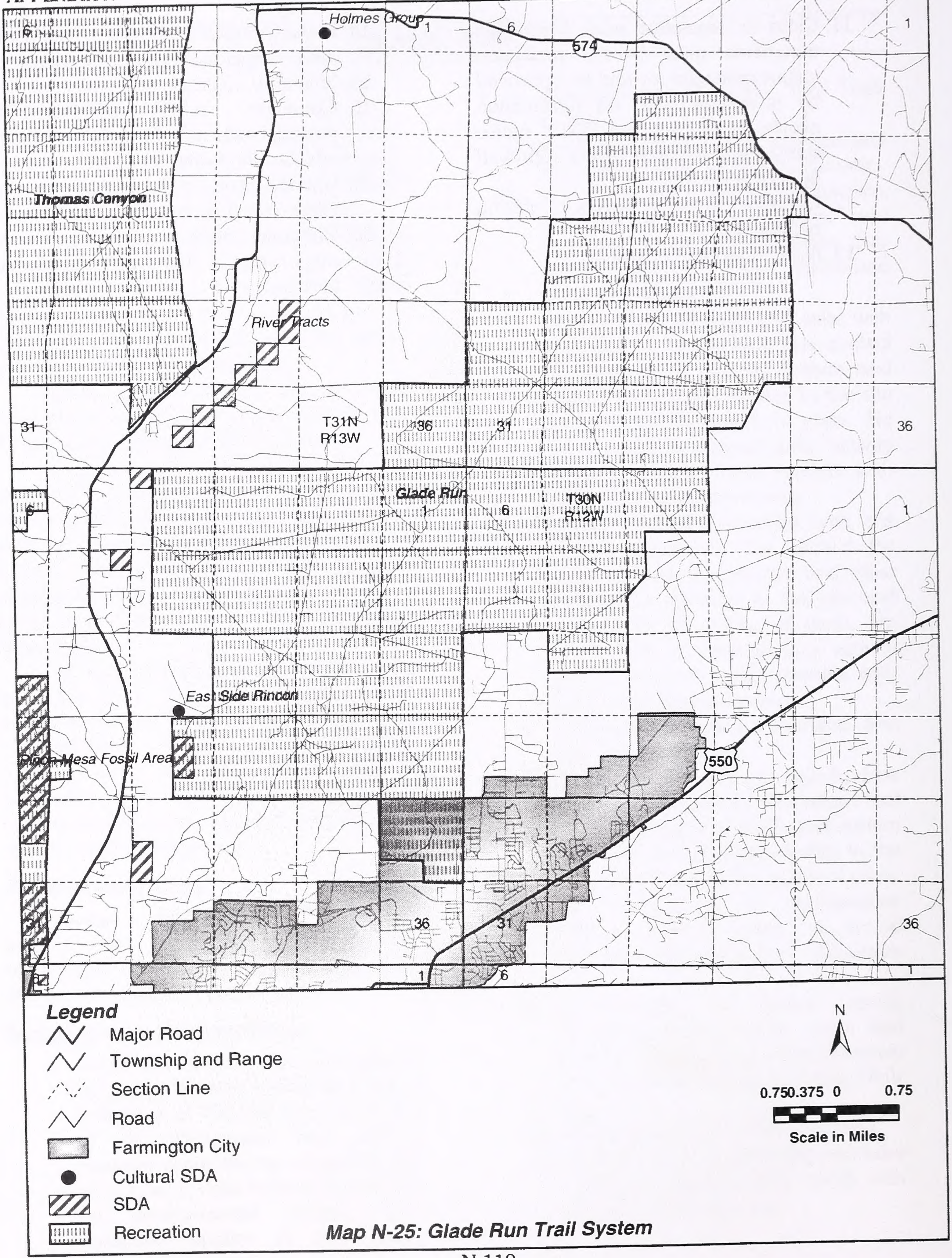
Management Goal:

Manage the Trail System to accommodate the largest variety of recreational uses. Coordinate management efforts with multiple regulatory groups.

Management Prescriptions:

1. Controlled Surface Use management constraint. No new activity allowed for a distance of 150 feet from either side of the designated trail system. Exceptions granted by recreation staff on a case-by-case basis as determined by environmental review. CSU constraint applies to any newly designated trails within the Trails System.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. No construction, drilling, completion, plugging, seismic exploration, and workover activity allowed when they would interfere with authorized recreation events.
4. Limited minerals lease and sales with site specific stipulations that protect the integrity of the trail system and other recreational activities in the site and provide for safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events.
5. Limited mineral locatables with site specific stipulations that protect the integrity of the trail system and other recreational activities in the site and provide for the safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events.
6. Continue to acquire easements and non-BLM inholdings.
7. ROWs granted on a case-by-case basis with site specific stipulations that protect the integrity of the trail system and other recreational activities in the site and provide for the safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events.
8. OHV limited to bladed roads, designated trails, routes ways and areas on 15,134 acres. Approximately 3,811 acres designated as Open OHV area.
9. Implement Class III VRM objectives.
10. Close to all wood gathering and sales except for administrative needs with recreation staff approval.

11. Close to vegetative sales. Vegetative treatments must benefit recreation values managed for and be approved by recreation staff. All reclamation activity in site will use ONLY native species seeds/ plants unless approved by recreation staff.
12. Continue current livestock grazing permitting.
13. Apply rural ROS objectives.
14. Review/revise/implement recreation area management plan as needed.
15. Inventory, maintain and replace signs.
16. Complete other administrative projects such as information displays and parking facilities.
17. Update acreage figure/map of the Glade Run Trail System boundary.
18. Designate noise receptor points at single track, trail and developed facilities.



Map N-25: Glade Run Trail System

HEAD CANYON MOTOCROSS TRACK

Site Description:

There are a total of 140 acres within the boundary of the Head Canyon Motocross Track, of which 138 acres are public land (BLM) and 140 acres contain federal minerals.

This site abuts the east side of State Highway 371 just south of Farmington, New Mexico.

The terrain in the northern portion is relatively flat and slopes gently upward toward hilly topographic relief in the southern portion. Vegetation is sparse and consists mainly of common grasses and a few scattered juniper trees.

Major use of the area includes oil and gas activity and competitive motorcycle events. Oil and gas storage facilities and pipelines are located within the SMA near two-track vehicle route.

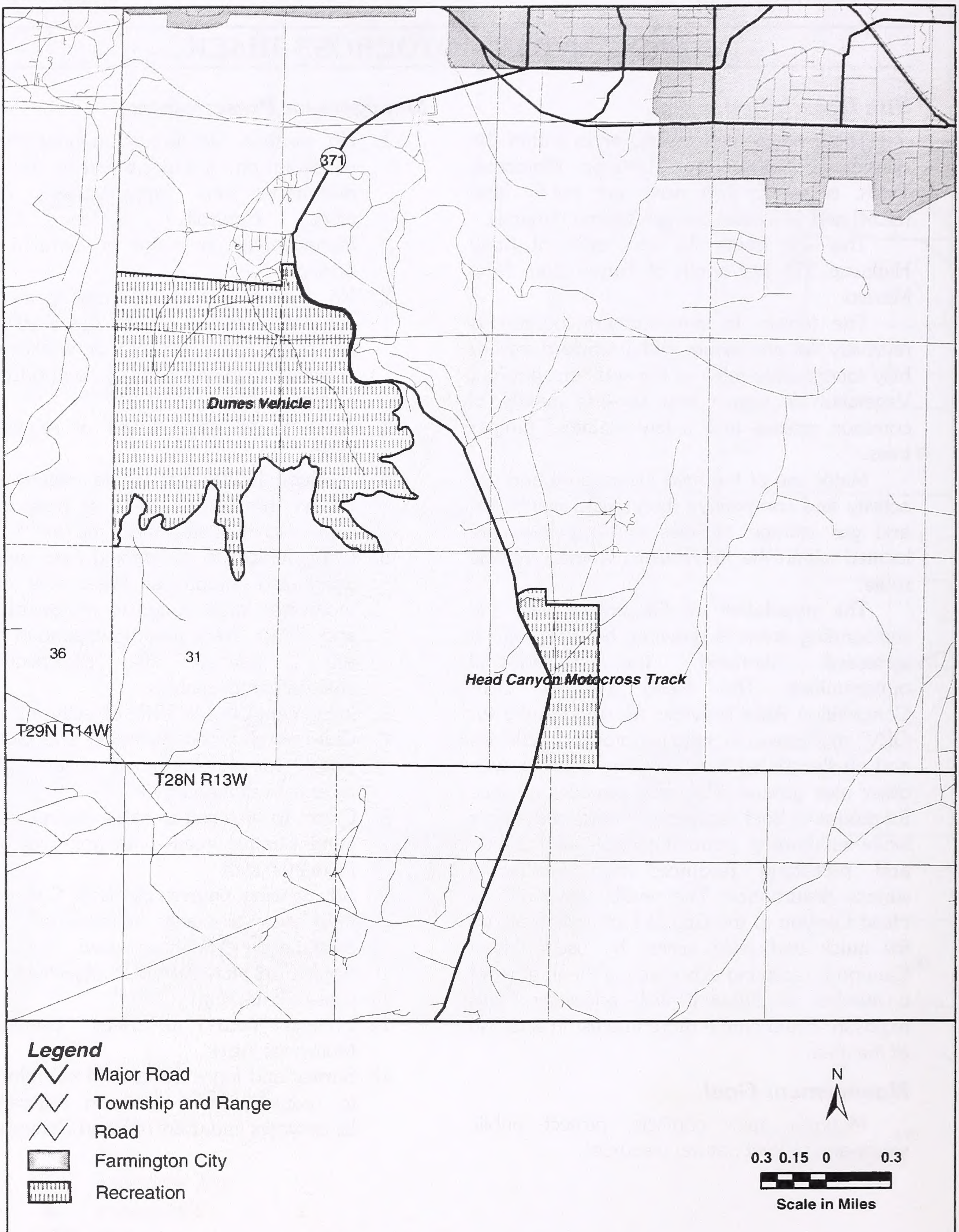
The population of Farmington and the surrounding areas is growing, bringing with it increased demand for recreational opportunities. The Head Canyon ORV Competition Area provides an opportunity for ORV enthusiasts to enjoy motorized activities and challenges while minimizing conflicts with other user groups. The area provides a place for groups to hold competitive motorized events while minimizing permitting costs and delays and protecting resources from additional surface disturbance. The nearby proximity of Head Canyon to the City of Farmington allows for quick and easy access by users. Head Canyon is receiving exposure via the internet at a number of different web addresses. This exposure could create more interest in and use of the area.

Management Goal:

Minimize user conflicts, protect public safety and protect natural resources.

Management Prescriptions:

1. No Surface Occupancy management constraint on oil and gas leasing under motorcross track (approximately 50 acres). Controlled Surface Use management constraint on remaining acreage.
2. No Surface Occupancy management constraint on new oil and gas leasing. No construction, drilling, or workover activities allowed during authorized events.
3. Close to all other forms of mineral entry.
4. Preclude ROWs that would negatively impact the existing track or potential expanded track area inside the site.
5. OHVs limited to maintained roads and designated motorcross track. Use on motocross track limited to motorcycles and ATV's. Track may be expanded in site if needed, after site-specific environmental analysis.
6. Implement Class IV VRM objectives.
7. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
8. Close to vegetative sales except for administrative needs with approval by recreation staff.
9. Any grazing permits in Head Canyon that are voluntarily relinquished or exchanged will not be reissued.
10. Apply rural recreation ROS objectives.
11. Close to shooting.
12. Change name to Head Canyon Motocross Track.
13. Survey and fence designated boundary to reduce conflict between adjacent landowners and users of Head Canyon.



Map N-26: Head Canyon Motocross Track

NAVAJO LAKE HORSE TRAILS

Site Description:

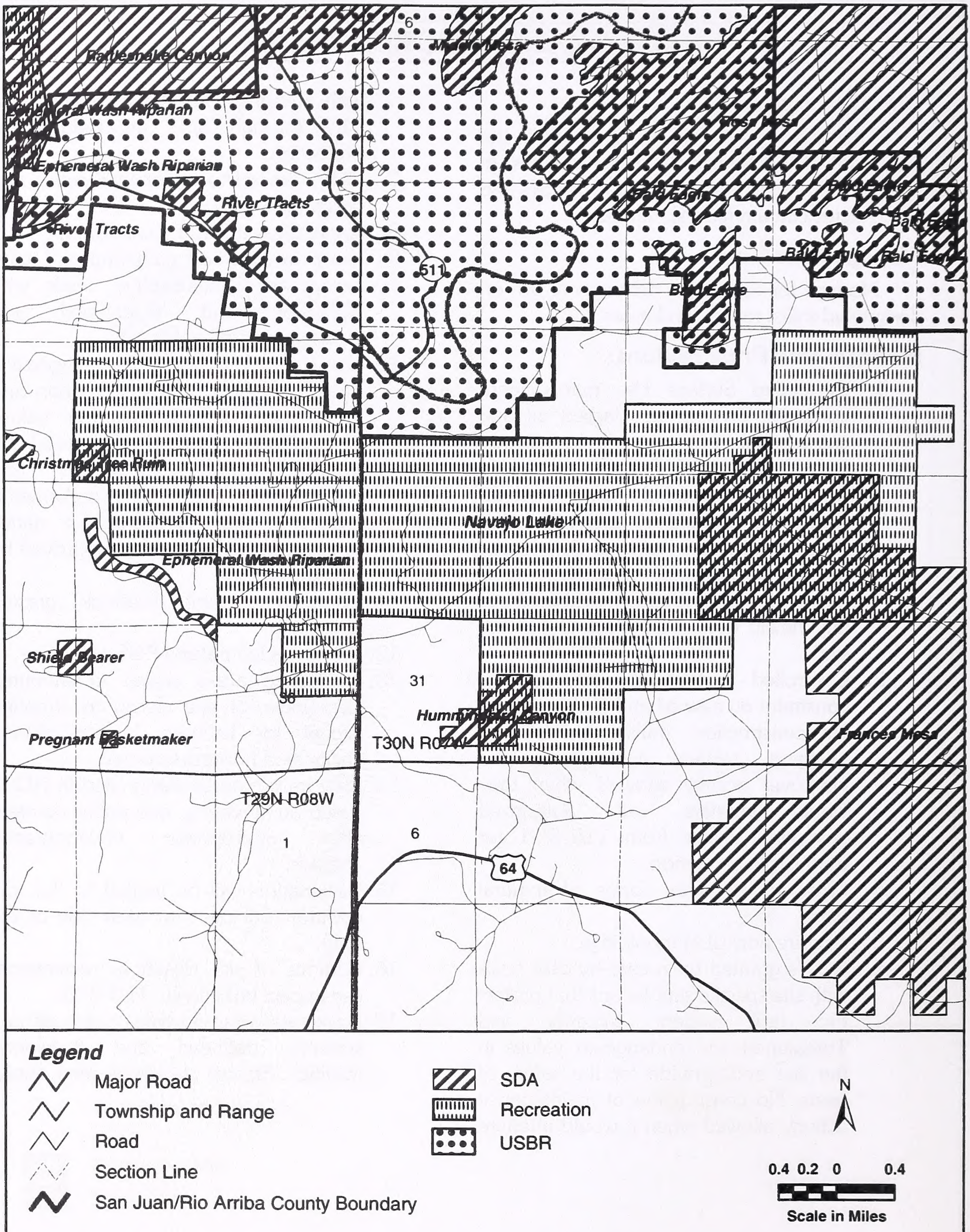
There are a total of 6,752 acres within the boundary of the Navajo Lake Horse Trails, of which 5,657 acres are public land (BLM) and 5,951 acres contain federal minerals.

Management Goal:

Manage for equestrian recreational use on designated trails, routes, and areas.

Management Prescriptions:

1. Controlled Surface Use management constraint on currently leased oil and gas acreage. No new activity allowed for a distance of 150 feet on each side of the designated trail system. Exceptions granted by recreation staff on a case-by-case basis as determined by environmental review. This management constraint would apply to any newly designated trails within the site.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. No construction, drilling, completion, plugging, seismic exploration, and workover activity allowed when they would interfere with authorized recreation events from 11/1-3/31 for Bald Eagle protection.
4. Close to all other forms of mineral entry.
5. Acquire non-BLM inholdings.
6. ROWs granted on a case-by-case basis with site specific stipulations that protect the trail system integrity and Threatened and endangered values in the site and provide for the safety of users. No construction of maintenance activity allowed when it would interfere with authorized recreation events from 11/1 through 3/31 for Bald Eagle protection.
7. OHVs limited to maintained roads and designated trails.
8. Apply Class III VRM designation.
9. Close to all wood gathering and sales except for administrative needs with recreation and Threatened and endangered staff approval.
10. Close to vegetative sales. Vegetative treatments must benefit recreation and Threatened and endangered values managed for and be approved by recreation and Threatened and endangered staff. All reclamation activity in site will use ONLY native species seeds/plants unless approved by recreation staff.
11. Continue current livestock grazing permitting.
12. Apply roaded natural ROS objectives.
13. Developed areas closed to shooting. Remainder of site closed to shooting except for licensed hunters during designated hunting seasons.
14. New trails may be designated in NLHT based on inventory, and public demand after appropriate environmental analysis.
15. Designation will be limited to the trail corridor (100 feet on each side of the trail).
16. Portions of site closed to recreational use impact bald eagle, 11/1-3/31.
17. Designate noise receptor points at trail systems, trailhead and developed facilities. Stricter standards may apply.



Map N-27: Navajo Lake Horse Trails

NEGRO CANYON

Site Description:

There are a total of 1,992 acres within the boundary of the Negro Canyon Scenic Area, of which 1,361 acres are public land (BLM) and 1,992 acres contain federal minerals.

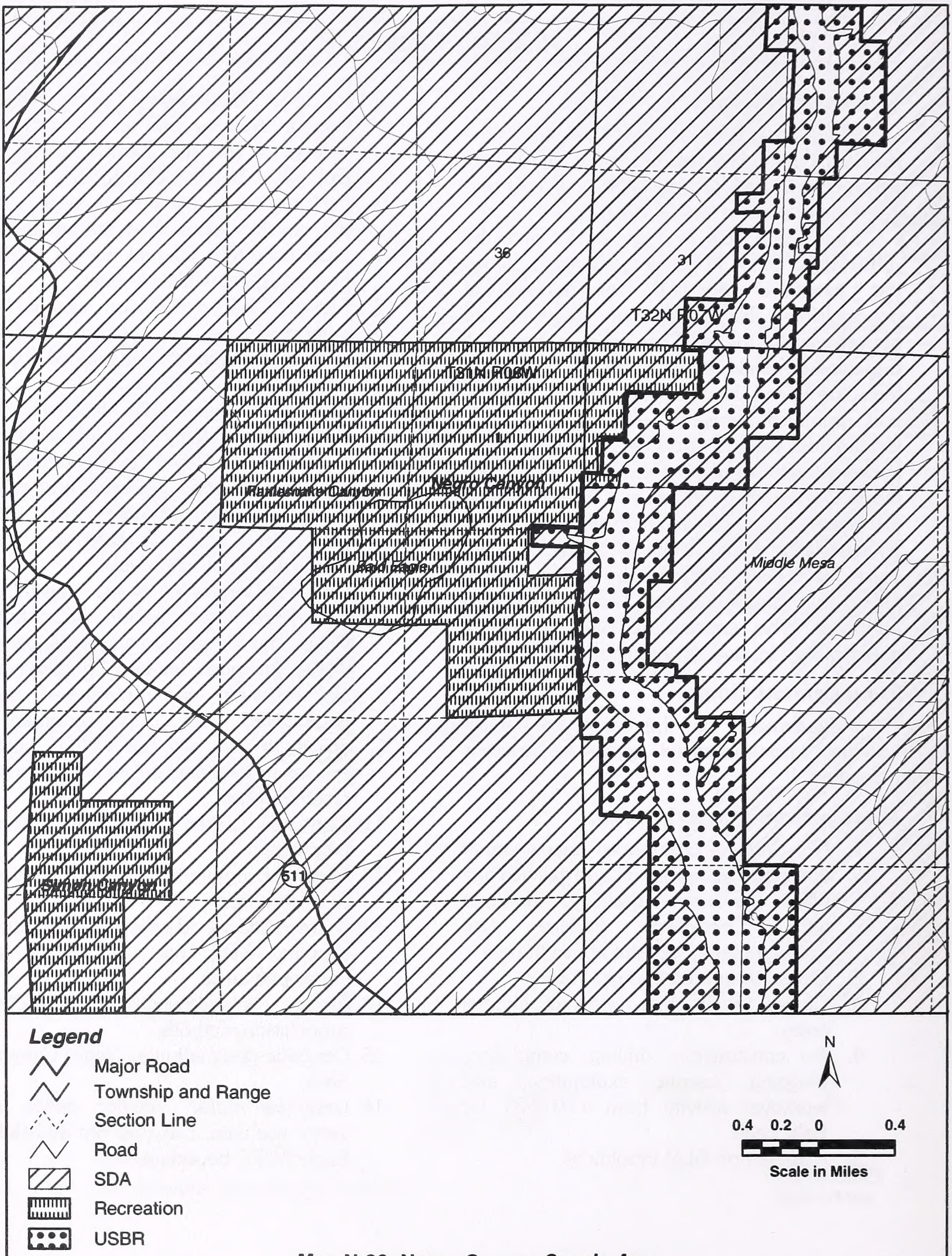
The population of Farmington and the surrounding areas in growing, bringing with it the increased demand for recreational opportunities. Negro Canyon provides an opportunity for the public to enjoy a variety of dispersed recreational activities and challenges including hiking, backpacking, wildlife viewing, and primitive camping. Negro Canyon is located just west of the Los Pinos River and approximately 10 miles north of Navajo Dam. Negro Canyon provides semi-primitive recreational opportunities for those interested in an alternative to the more developed Navajo Lake State Park. Negro Canyon is receiving exposure via the internet and various web addresses. This exposure is likely to create more interest in, and use of the area.

Management Goal:

Management of the area for semi-primitive, non-motorized types of outdoor recreation.

Management Prescriptions:

1. No Surface Occupancy management constraint on leased oil and gas acreage within the canyon drainage. Continue with Controlled Surface Use management constraint above the rim.
2. Closed to new oil and gas leasing.
3. Closed to all other forms of mineral entry.
4. No construction, drilling, completion, plugging, seismic exploration, and workover activity from 11/1-3/31 for Bald Eagle.
5. Acquire non-BLM inholdings.
6. Preclude new ROWs from Negro Canyon drainage and on the unleased acreage in the site. Permit ROWs on Controlled Surface Use acreage above the rim, on a case-by-case basis with site specific stipulations that maintain recreation and natural values, VRM objectives and wildlife habitat.
7. Closed OHV designation except for authorized use in Negro Canyon drainage. Limited to maintained roads above the canyon rim.
8. Implement Class I VRM objectives. No construction activity or equipment will be visible from Negro Canyon drainage.
9. Close to all wood gathering and sales except for administrative needs with recreation and Threatened and endangered staff approval.
10. Close to vegetative sales. Vegetative treatments must benefit recreation, visual, and Threatened and endangered values managed for and be approved by recreation and Threatened and endangered staff. All reclamation activity in site will use ONLY native species seeds/plants unless approved by recreation staff.
11. Continue current livestock grazing permitting.
12. Apply semi-primitive, non motorized ROS objectives.
13. If recreational development occurs, shooting restrictions would apply at developed areas.
14. Apply limited/conditional wildfire suppression methods.
15. Continue designation as Negro Canyon SMA.
16. Designate noise receptor points at visitor use area, canyons, rim and Bald Eagle ACEC boundary.



Map N-28: Negro Canyon Scenic Area

PIÑON MESA

Site Description:

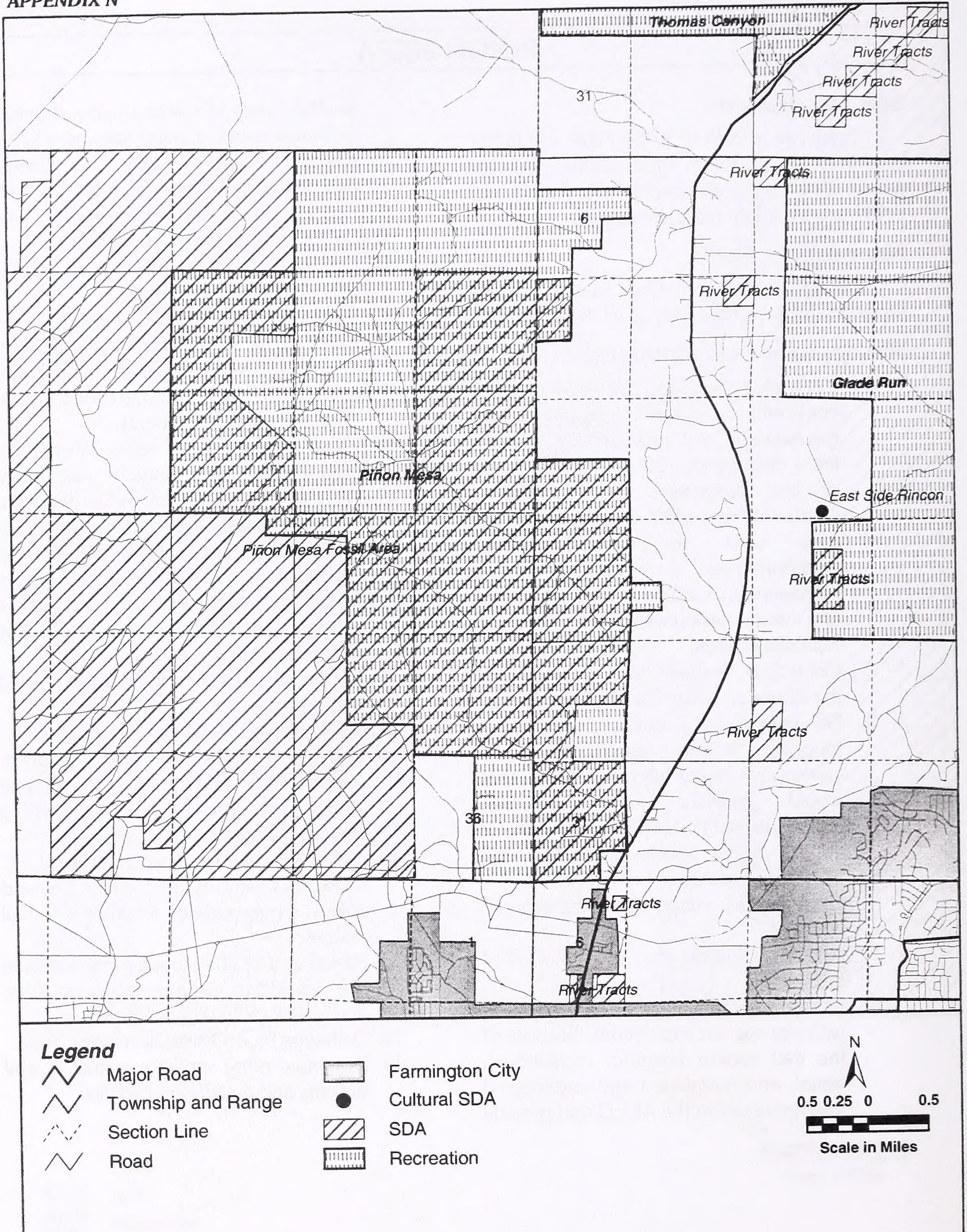
There are a total of 9,454 acres within the boundary of the Piñon Mesa Scenic Area, of which 8,340 acres are public land (BLM) and 8,489 acres contain federal minerals.

Management Goal:

Manage to provide and protect recreational, paleontological, and visual values.

Management Prescriptions:

1. Controlled Surface Use management constraint on currently leased oil and gas acreage. No new activity allowed for a distance of 150 feet on each side of the designated trail. Exceptions granted by recreation staff on a case-by-case basis as determined by environmental review. This management constraint would apply to any newly designated trails within the Recreation Area.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. No construction, drilling, completion, plugging, seismic exploration, and workover activity allowed when they would interfere with authorized recreation events and from 3/1-6/30 for various raptor species protection and 3/1-8/1 for peregrine protection.
4. Close to all other forms of mineral entry.
5. Acquire easements and non-BLM inholdings.
6. ROWs granted on a case-by-case basis with site specific stipulations that protect the trail system integrity, recreational, visual, and threatened and endangered species values in the ACEC and provide for the safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events and from 3/1-6.30 for various raptor species protection and 3/1-8/1 for peregrine protection.
7. OHVs limited to maintained roads, designated trails and routes.
8. Apply Class III VRM objectives.
9. Close to all wood gathering and sales except for administrative needs with recreation and Threatened and endangered staff approval.
10. Close to vegetative sales. Vegetative treatments must benefit recreation, visual, and Threatened and endangered values managed for and approved by recreation and Threatened and endangered staff. All reclamation activity in ACEC will use only native species seeds/plants unless approved by recreation staff.
11. Continue current livestock grazing permitting.
12. Apply roaded natural ROS objectives.
13. Developed areas closed to shooting. Remainder of ACEC closed to shooting except for licensed hunters during designated hunting seasons.
14. New trails may be designated in ACEC based on inventory, and public demand after appropriate environmental analysis.
15. Portions of ACEC closed to recreational use impacting various raptor species; 3/1-6/30 and 3/1-8/1 for Peregrine.
16. Delineate Piñon Mesa Recreation Area.
17. Designate noise receptor points at trail systems and developed facilities.



Map N-29: Piñon Mesa Scenic Area

ROCK GARDEN

Site Description:

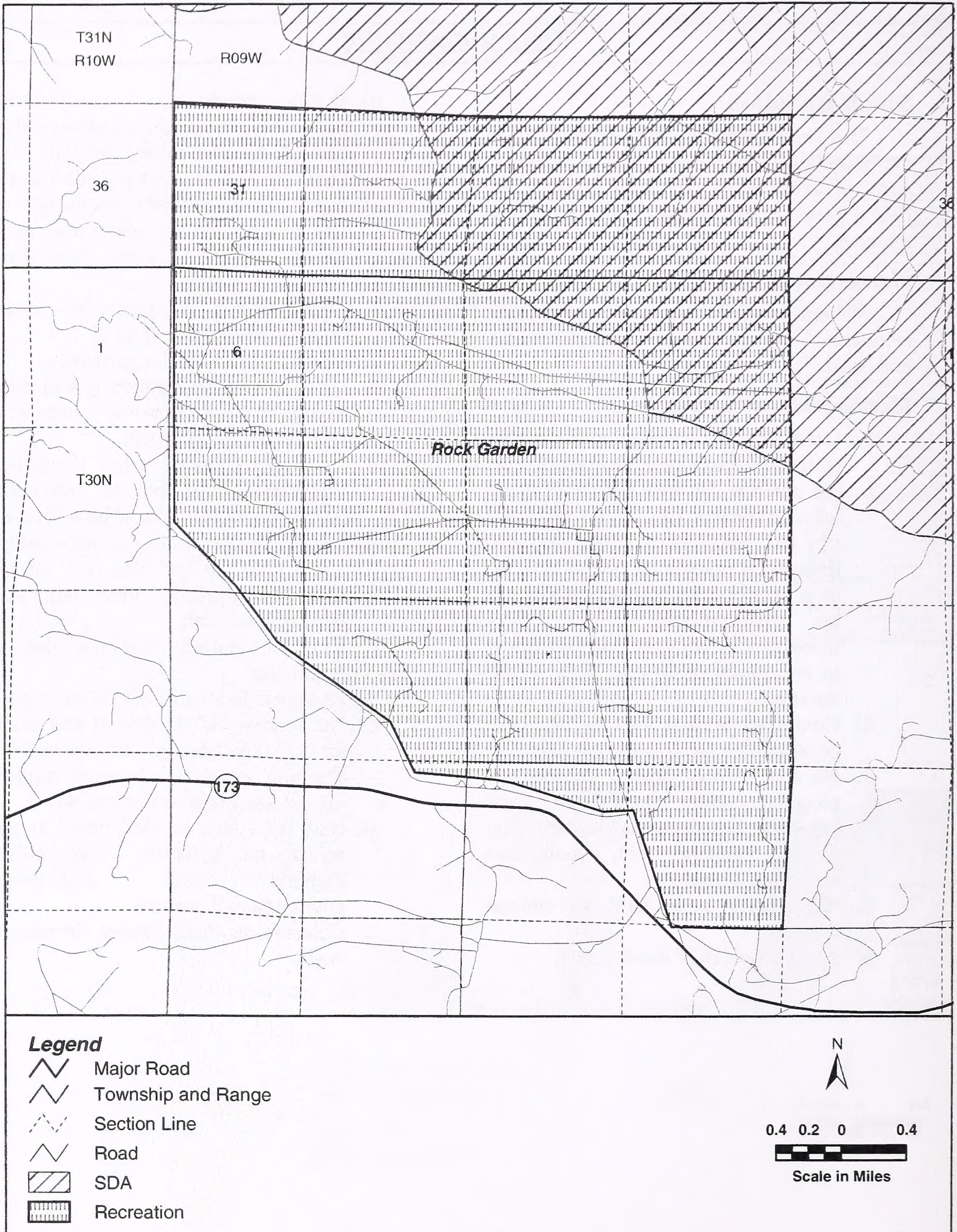
There are a total of 10,849 acres within the boundary of the Rock Garden Recreation Area, of which 8,398 acres are public land (BLM) and 8,701 acres contain federal minerals.

Management Goal:

Manage for OHV, equestrian, and other recreational use on designated trails, routes and areas.

Management Prescriptions:

1. Controlled Surface Use management constraint on currently leased oil and gas acreage. No new activity allowed for a distance of 100 feet on each side of the designated trail system. Exceptions granted by recreation staff on a case-by-case basis as determined by environmental review. This management constraint would apply to any newly designated trails within the site.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. No construction, drilling, completion, plugging, seismic exploration, and workover activity allowed when they would interfere with authorized recreation event.
4. Close to all other forms of mineral entry.
5. Acquire non-BLM inholdings.
6. ROWs granted on a case-by-case basis with site specific stipulations that protect the trail system integrity and values in the site and provide for the safety of the users. NO construction or maintenance activity allowed when it would interfere with authorized recreation events.
7. OHVs limited to maintained roads, designated routes and trails.
8. Apply Class III VRM objectives.
9. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
10. Close to vegetative sales. Vegetative treatments must benefit recreation values managed for and be approved by recreation staff. All reclamation activity in site will use only native species seeds/plants unless approved by recreation staff.
11. Continue current livestock grazing permitting.
12. Apply roaded natural ROS objectives.
13. No shooting in developed recreation area. Remainder of site closed to shooting except for licensed hunters during designated hunting seasons.
14. New trails may be designated in site based on inventory, and public demand after appropriate environmental analysis.
15. Delineate as Rock Garden Recreation Area.



Map N-30: Rock Garden Recreation Area

SIMON CANYON

Site Description:

There are a total of 3,928 acres within the boundary of the Simon Canyon Recreation Area, all of which are public land acres (BLM) and federal mineral acres.

The site is located approximately 25 miles east of Aztec and Bloomfield, San Juan County, New Mexico on the San Juan River, two and three-quarter miles west of Navajo Dam.

Access to the general area is via US Highways 64 and 550, State Highway 44 and State Roads 173 and 539. Access to the Recreation Area if provided by a two mile long public road that joins State Road 173.

Simon Canyon is characterized b moderately steep to very steep rough, broken and hilly topography. The elevation of Simon Canyon varies from 5,800 feet at the bottom of the canyon to 6,275 feet at the top of the rim. A small intermittent stream flows north to south and then westerly down the middle of the canyon into the San Juan River.

Plant species are generally consistent with the Upper and Lower Sonoran Life Zone, except for those areas where surface water provides for a localized riparian plant community. The more common grasses are blue grama, western wheatgrass, galleta, ring muhly and three-awns. Various cactus species are present, primarily in the bottom of the canyon. An even-age stand of cottonwood trees is found at the bottom of the canyon and along the river, while piñon pine and juniper are found at the upper elevations with small, scattered patches of ponderosa pine and Douglas fir along the high canyon rims.

The canyon also provides habitat for a variety of birds and mammals, such as golden eagle, prairie falcon, great horned owl, scrub jay, quail, rock wren, spotted ground squirrel, mountain cottontail, skunk, gray fox, porcupine, coyote, and beaver. The upper and middle portions of the canyon provide shelter for deer.

Management Goal:

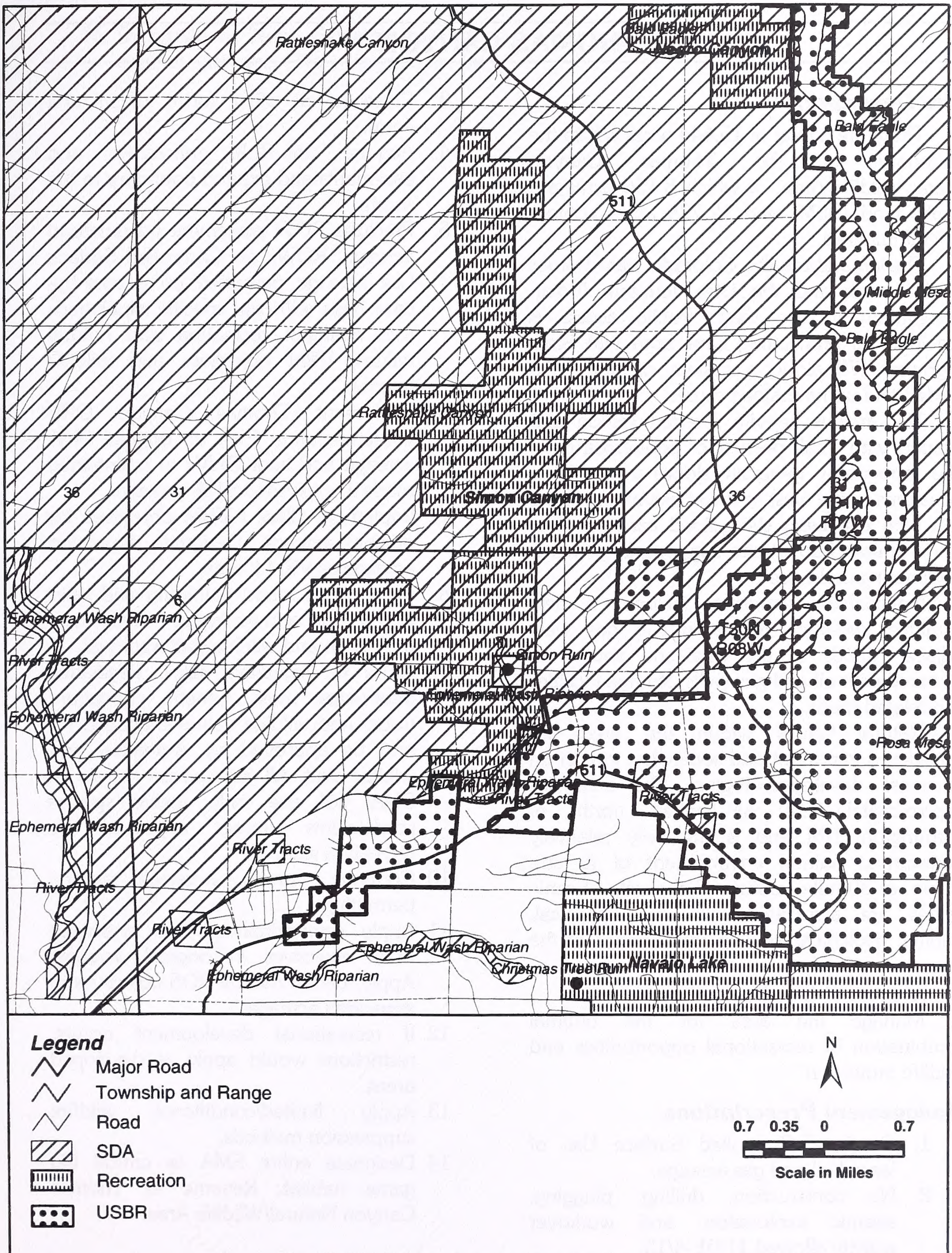
Continue to manage Simon Canyon to provide opportunities for the public to enjoy a variety of recreational activities and challenges, including fishing, hiking, backpacking, wildlife viewing, tent camping and cultural interpretation.

Management Prescriptions:

1. No Surface Occupancy management constraint for oil and gas leased acreage within the canyon drainage and bottom flatlands. Controlled Surface Use management constraint above the canyon rim.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire easements.
5. ROWs precluded from Simon Canyon drainage. Granted in remainder of ACEC on a case-by-case basis with stipulations to maintain natural, recreation, and visual values.
6. Simon Canyon drainage closed to OHVs, except for authorized use. In remainder of ACEC, use will be limited to maintained roads.
7. Implement Class II VRM designation. No construction activity or equipment will be visible from Simon Canyon drainage.
8. Close to all wood gathering and sales except for administrative needs with recreation staff approval.
9. Close to vegetative sales except for administrative needs. Vegetation treatments must benefit recreation experiences managed for and be approved by recreation staff. All reclamation in the ACEC will use only native species seed/plants unless approved by recreation staff.
10. Continue current livestock grazing permitting; grazing allowed on the rim

and prohibited in the flatlands and canyon bottom.

11. Apply semi-private non-motorized ROS objectives in the canyon. Apply semi-primitive motorized ROS objectives above the rim.
12. No shooting in the developed recreation area. No shooting in Simon Canyon drainage.
13. Apply limited/conditional wildfire suppression methods.
14. Add land within SMA (that is outside existing ACEC) to ACEC. Remove SMA designation and apply ACEC designation to expanded area. Change name to Simon Canyon ACEC.
15. Review/revise Recreation Area Management Plan as necessary, to include ACEC revision.
16. Continue implementation of RAMP.
17. Designate noise receptor points on rim, canyon including ruin, and bottom flatland. Stricter standards may apply.



Map N-31: Simon Canyon Recreation Area

THOMAS CANYON

Site Description:

There are a total of 15,644 acres within the boundary of the Thomas Canyon Scenic/Wildlife Area, of which 8,156 acres are public land (BLM) and 12,775 acres contain federal minerals.

The area abuts the Colorado state border to the north and the Ute Mountain Indian Reservation to the west. Public access is provided by proceeding west from NM State Highway 170 along a system of unmarked graded and unmaintained routes.

The area is heavily forested (piñon and juniper) with small pockets of ponderosa pine. The topography generally slopes from higher elevations in the west to lower elevations in the east with dissecting steep-sided canyons. The piñon-juniper habitat site supports large herds of wintering mule deer.

Noticeable intrusions include a few primitive two-track routes and a gas well. Adjacent lands to the east and south are scattered with oil and gas wells, storage facilities and related roads.

Natural values within the area are considered important and somewhat rare in an otherwise developed region. The area lies approximately 14 air miles north of Farmington, NM and is the only relatively undisturbed natural environment of its size within a 30-mile radius of the city. Scenic values are associated with the botanical, wildlife, geological and natural features of the area.

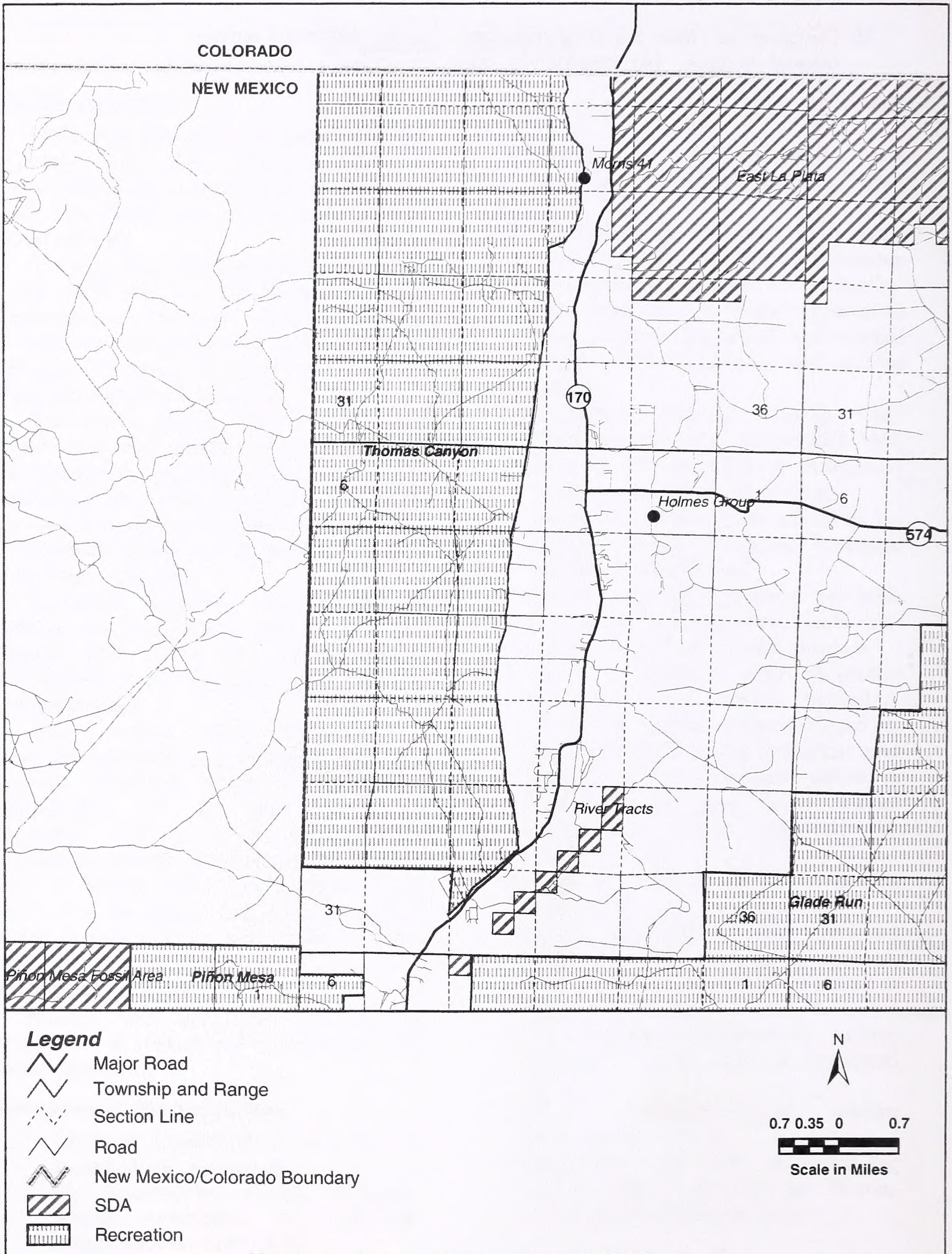
Management Goal:

Manage the area for the optimal combination of recreational opportunities and wildlife protection.

Management Prescriptions:

1. Continue Controlled Surface Use of leased oil and gas acreage.
2. No construction, drilling, plugging, seismic exploration, and workover activity allowed 11/01–4/15.
3. Close to all other forms of mineral entry.
4. Acquire non-BLM inholdings and easements and expand boundary to the south.
5. Preclude ROW placement on unleased acreage. ROWs on Controlled Surface Use acreage permitted on a case-by-case basis with site specific stipulations that maintain recreation and natural values, VRM objectives and wildlife habitat.
6. Implement Thomas Canyon ORV Implementation Plan on original SMA acreage and limit OHVs to maintained roads in expanded SMA acreage.
7. Implement Class I VRM objectives for original acreage. Designate expanded acreage as VRM II area.
8. Close to all wood gathering and sales except for administrative needs with recreation and wildlife staff approval.
9. Close to vegetative sales. Vegetative treatments must benefit recreation, visual and wildlife values managed for and be approved by recreation and wildlife staff. All reclamation activity in SMA will use only native species seeds/plants unless approved by recreation staff.
10. Continue current livestock grazing permitting.
11. Apply semi-primitive, non motorized ROS objectives in original acreage. Apply roaded natural ROS objectives in expanded acreage.
12. If recreational development occurs, restrictions would apply at developed areas.
13. Apply limited/conditional wildfire suppression methods.
14. Designate entire SMA as critical big game habitat. Rename as Thomas Canyon Natural/Wildlife Area.

15. Designate as Noise Sensitive Area on original acreage. No designation on expanded acreage.



Map N-32: Thomas Canyon Scenic/Wildlife Area

5. RIPARIAN

GENERAL DESCRIPTION

Riparian habitat management by federal agencies across the west has become a priority for federal land management agencies because of the rarity and importance of this habitat for wildlife and recreation. Some riparian areas managed by the FFO support potential habitat for species that are federally listed as endangered, threatened, or are proposed proposed for listing. BLM policy mandates that lands that support habitat for endangered species should be retained in federal ownership and sensitive species should be managed so they will not need to be listed under the Endangered Species Act in the future. The designation of the Ephemeral Wash Riparian Area will provide some additional protection for these riparian systems and facilitate the attainment and maintenance of proper functioning condition.

EPHEMERAL WASH RIPARIAN AREA

Site Description:

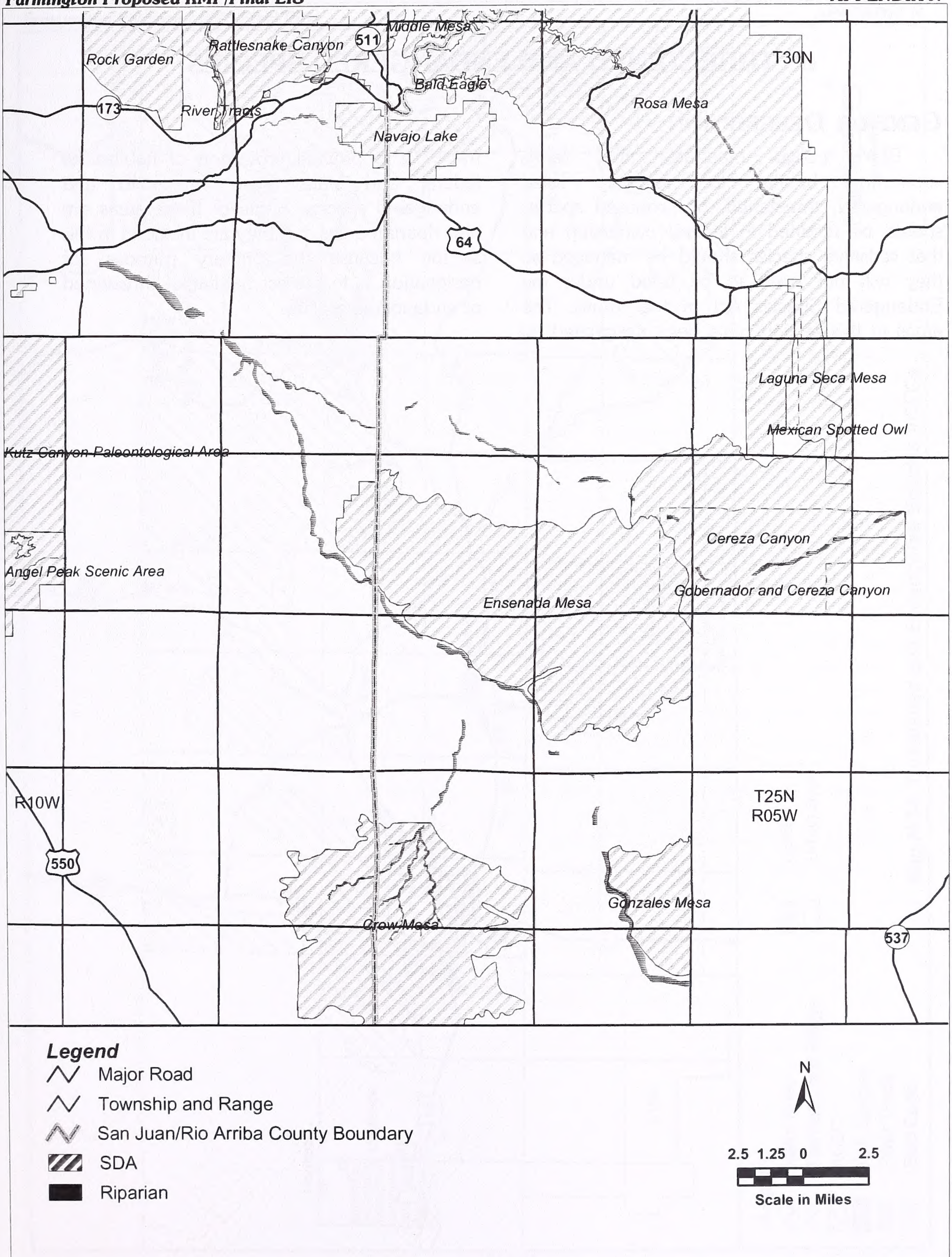
There are a total of 7,499 acres within the boundary of the Ephemeral Wash Riparian Area (Riparian), of which 7,331 acres are public land (BLM) and 7,363 acres contain federal minerals. Riparian habitat management by Federal agencies across the west has come under intense scrutiny because of the rarity and importance of this habitat type. The designation of the Ephemeral Wash Riparian SMA will provide some additional protection for these riparian systems and facilitate the attainment and maintenance of proper functioning condition.

Management Goal:

Manage to protect these riparian systems and facilitate the attainment and maintenance of proper functioning condition as outlined in the 2000 Riparian and Aquatic Habitat Management Plan.

Management Prescriptions:

1. Apply No Surface Occupancy COA on currently leased acreage in active floodplain and Controlled Surface Use stipulation in 100-year floodplain.
2. Apply No Surface Use stipulation on new leasing in active floodplains and apply Controlled Surface Use stipulation on new leases in 100-year floodplains on designated riparian areas.
3. In 100-year floodplain, special stipulations and mitigation would apply to leasables/salables.
4. In 100-year floodplain, special stipulations and mitigation would apply to locatables.
5. Acquire non-federal minerals.
6. Special stipulations and mitigation would apply on ROWs.
7. OHV designation limited to maintained roads, designated routes, and trails.
8. Designate as VRM Class II, III, and IV Area.
9. Close to all wood cutting and gathering except for administrative purposes with approval of wildlife staff.
10. Vegetative management must benefit the values for which the SMA was established.
11. Ranges from no grazing where no authorized grazing already exists to dormant season grazing where permits do exist.
12. Delineate Ephemeral Wash Riparian Area.

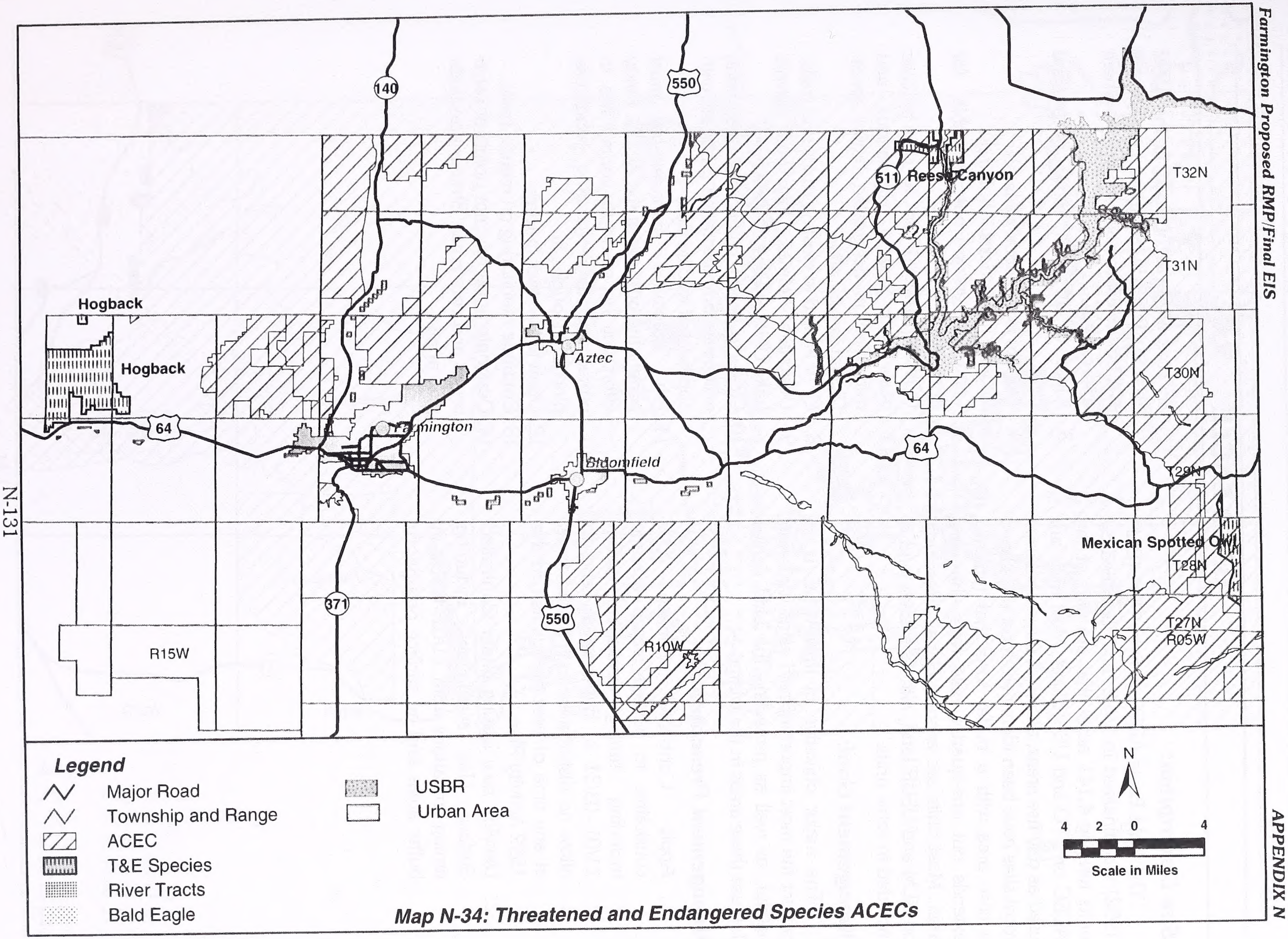


Map N-33: Ephemeral Wash Riparian Area

6. THREATENED AND ENDANGERED SPECIES

GENERAL DESCRIPTION

BLM policy mandates that lands supporting habitat for federally listed endangered, threatened, or proposed species should be retained in federal ownership and that sensitive species should be managed so they will not need to be listed under the Endangered Species Act in the future. The areas in this section have been designated by the FFO to provide protection of habitat for federal and state listed threatened and endangered species. Some of these areas are also riparian areas, but they are included in this section because the primary purpose for designation is to protect habitat of threatened or endangered species.



Map N-34: Threatened and Endangered Species ACECs

BALD EAGLE

Site Description:

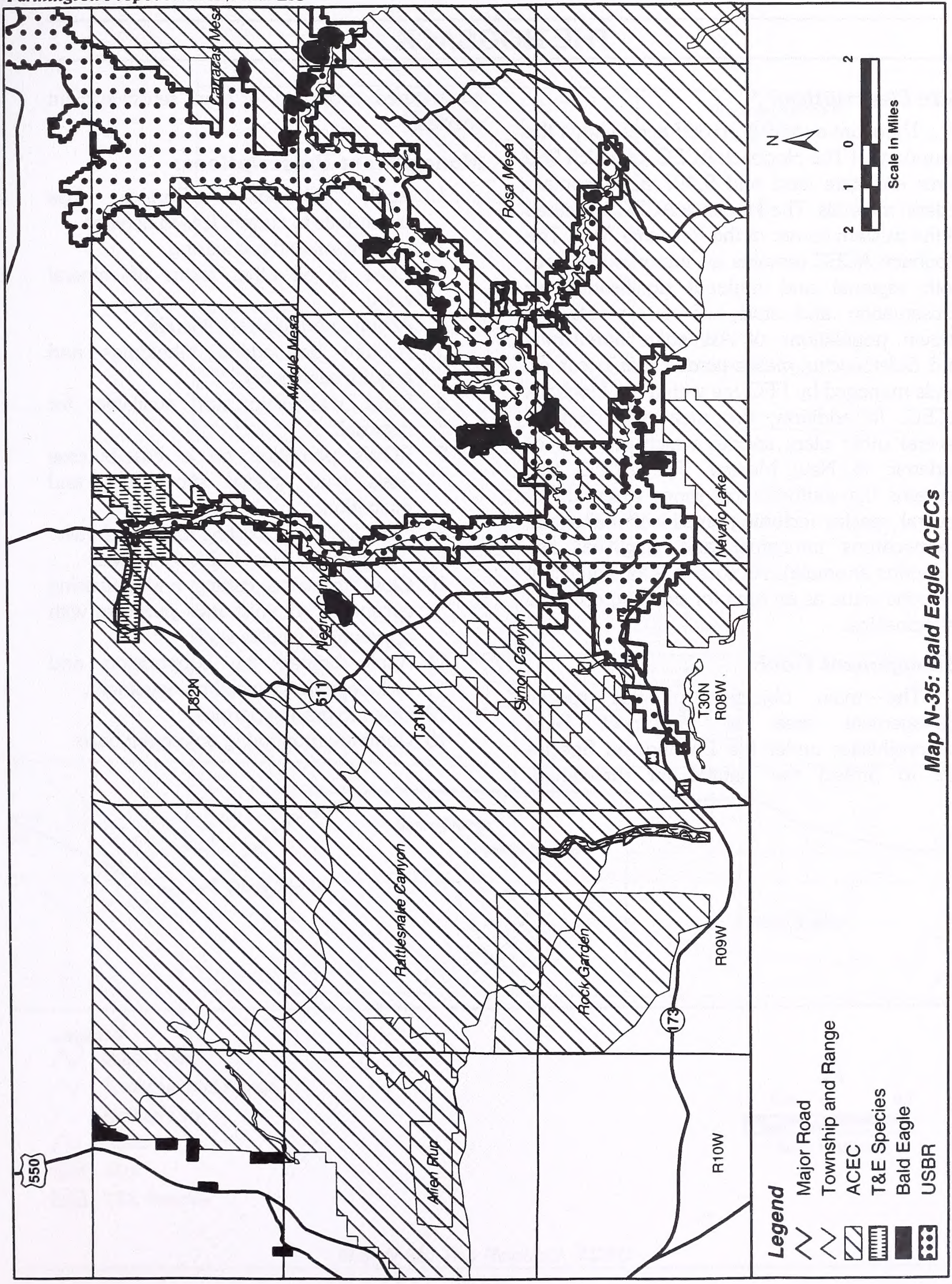
The Bald Eagle ACEC Activity Plan (BLM 1992) was finalized in 1992, and identified 37 units totaling 4,141 acres that are part of the ACEC on FFO and USBR land. Most units are used as day use areas, although three nocturnal roost sites have been identified. Most units have a core area with a buffer zone that typically extends out one-quarter mile from the core area. Most units are around Navajo Reservoir on BLM and USBR land, although state land is included in some units.

Management Goal:

The major objective of this ACEC is to protect the most important bald eagle wintering habitat, as well as protecting the bald eagles that use these areas in the winter.

Management Prescriptions:

1. Apply Controlled Surface Use constraints to current leased acreage including timing limitations from 11/01–03/31 in buffer areas, and to allow no disturbance to the core areas at any time of year as outlined in the 1992 Activity Plan.
2. Develop new leasing under Controlled Surface Use stipulations including timing limitations from 11/01–03/31 in buffer areas and no surface occupancy in core areas as outlined in the 1992 Activity Plan. In addition, new leasing will be subject to noise limitations where appropriate.
3. Close to all other forms of mineral entry.
4. Acquire non-federal minerals.
5. Acquire non-federal inholdings.
6. Land ownership not available for disposal.
7. ROWs permitted on a case-by-case basis with special stipulations and mitigation in designated buffer areas. Closed in core areas.
8. OHV limited to existing roads and trails.
9. Designate Animas Units and Navajo Lake Units as Class II VRM Area.
10. Close to wood cutting and gathering except for administrative purposes with approval of wildlife staff.
11. Any vegetative management must benefit the purpose of the ACEC. Every effort will be made to control fire to protect the large standing ponderosa pine and Douglas fir.
12. Open to livestock grazing.
13. Continue monitoring on regular basis.
14. Designate noise receptor points at eagle roosts and core areas. Stricter standards may apply.



Map N-35: Bald Eagle ACECs

THE HOGBACK

Site Description:

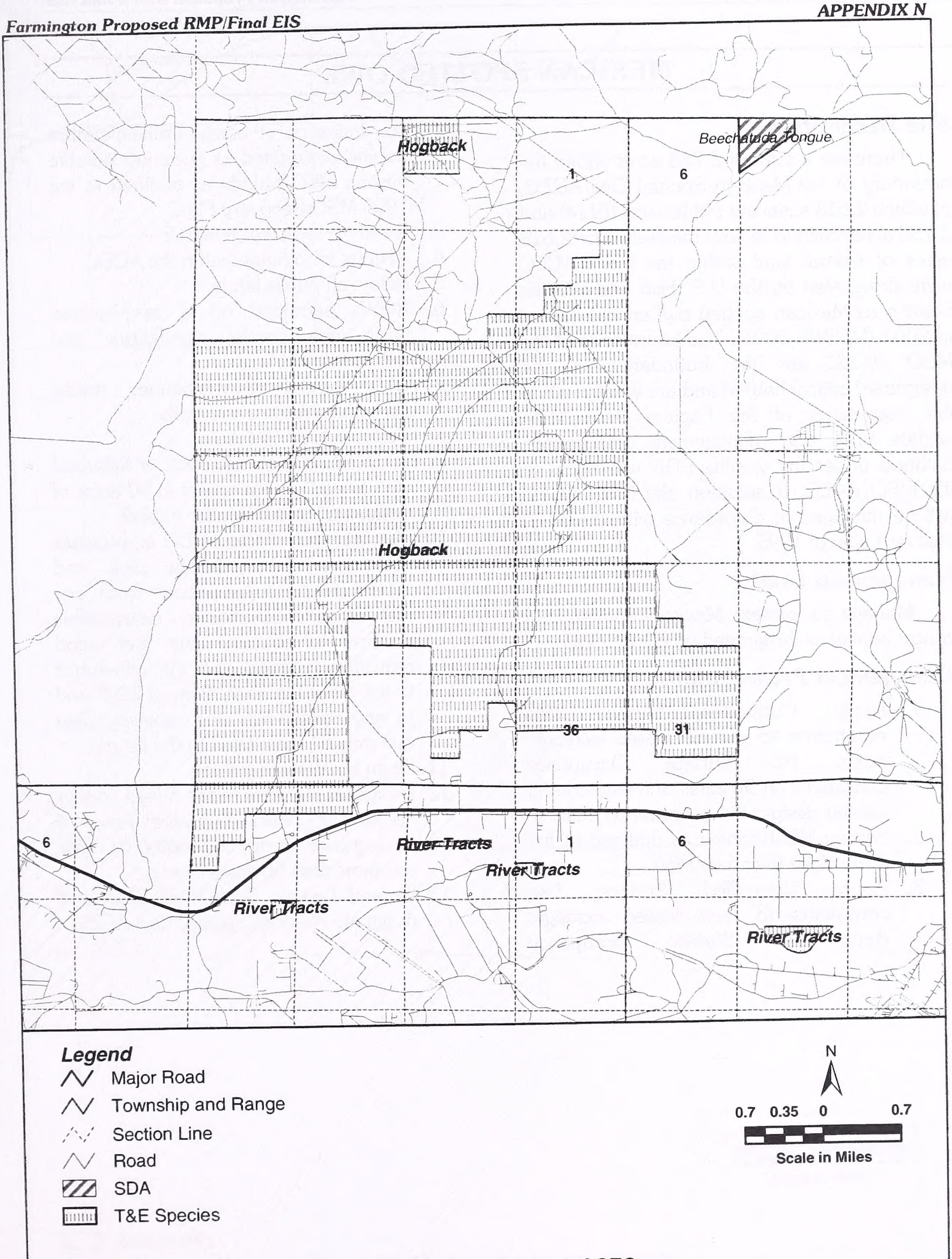
There are a total of 10,367 acres within the boundary of The Hogback ACEC, of which 960 acres are state land and 9,497 acres contain federal minerals. The Hogback ACEC is located in the western corner of the Resource Area. The Hogback ACEC remains an important area of both regional and national significance for conservation and study of rare plants. All known populations of *Astragalus humillimus* and *Sclerocactus mesae-verdae* that occur on lands managed by FFO are within the Hogback ACEC. In addition, this area also contains several other plant species which are rare or endemic to New Mexico. The ACEC also contains the southernmost range extension of several species including small-leaf mahogany (Cercocarpus intricatus) and singleleaf ash (Fraxinus anomala). As such it is of significant scientific value as an area for studying ecotonal relationships.

Management Goal:

The main objective of this special management area is to meet BLM responsibilities under the Endangered Species Act to protect the habitat for threatened, endangered, proposed, or other sensitive plant species.

Management Prescriptions:

1. Apply Controlled Surface Use constraints to current leased acreage.
2. No new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Acquire non-federal minerals.
5. Acquire non-federal inholdings and acquire easements.
6. Land ownership not available for disposal.
7. ROWs permitted on a case-by-case basis with special stipulations and mitigations.
8. OHV limited to existing roads and trails.
9. Designate as Class II, III VRM Area.
10. Close to wood cutting and gathering except for administrative purposes with approval of wildlife staff.
11. Apply limited fire suppression and include invasive weed management.
12. Open to grazing permits.
13. Continue monitoring on regular basis.



Map N-36: The Hogback ACEC

MEXICAN SPOTTED OWL

Site Description:

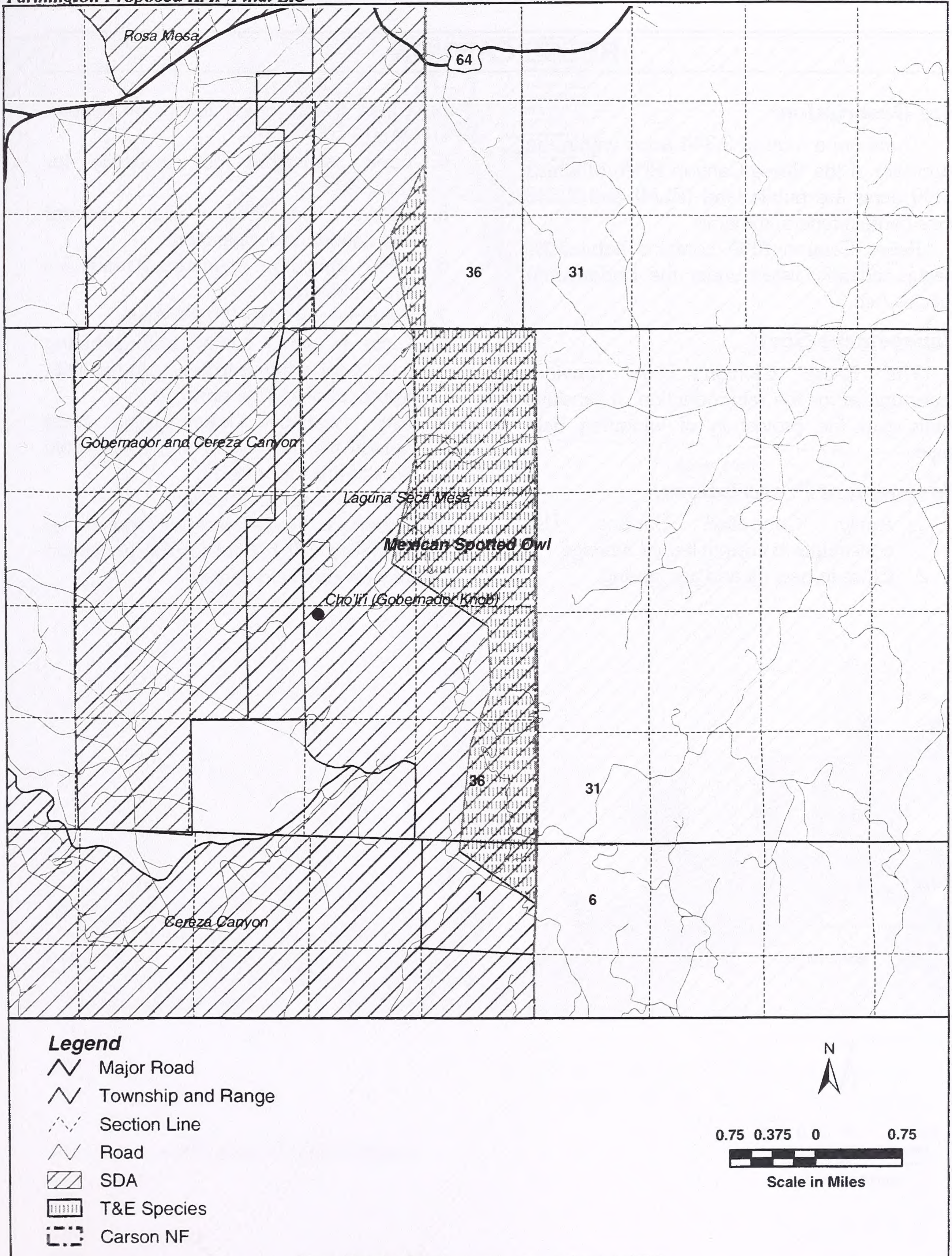
There are a total of 2,758 acres within the boundary of the Mexican Spotted Owl ACEC, of which 2,618 acres are public land (BLM) and 2,758 acres contain federal minerals. The 2,618 acres of federal land within the MSO ACEC were designated by the U.S. Fish and Wildlife Service as Mexican spotted owl critical habitat in 2001 (USFWS 2001). The boundaries of the MSO ACEC are the boundaries of the designated critical habitat and are wholly within the boundaries of the Laguna Seca Mesa wildlife SDA, and management prescriptions outlined under the wildlife SDA will apply to the MSO ACEC. In addition, the MSO ACEC will be managed in accordance with the MSO recovery plan of 1995.

Management Goal:

Manage to protect Mexican spotted owl critical habitat as designated by the USFWS.

Management Prescriptions:

1. Apply Controlled Surface Use constraints to current leased acreage. Apply No Surface Occupancy constraints on 90 acres of mixed conifer habitat designated as currently suitable nesting MSO habitat as outlined in the 1995 MSO Recovery Plan.
2. Apply Controlled Surface Use constraints to new leased acreage. Apply No Surface Occupancy constraints on 90 acres of mixed conifer habitat designated as currently suitable nesting MSO habitat as outlined in the 1995 MSO Recovery Plan.
3. Open for locatable minerals.
4. Acquire inholdings within the ACEC.
5. Retain all public lands.
6. ROWs permitted on a case-by-case basis with special stipulations and mitigations.
7. OHV limited to maintained roads, designated routes, and trails.
8. Designate IV VRM Area.
9. Allow the cutting/collection of firewood with a valid permit except in 90 acres of designated mixed conifer habitat.
10. Management of the ACEC emphasizes protection of ponderosa pine and mixed conifer forest stands from any man-caused disturbance, catastrophic wildfires by thinning and fuel wood reduction projects, and the adherence to the MSO Recovery Plan of 1995 and to any revisions of the recovery plan that may be completed in the future.
11. Open to livestock grazing.
12. Designate 90 acres of the mixed conifer habitat as Noise Sensitive Area. If nesting owls are found, additional noise receptors may be designated.
13. Expand Laguna Seca Mesa SMA and designate Mexican Spotted Owl ACEC.



Map N-37: Mexican Spotted Owl ACEC

REESE CANYON

Site Description:

There are a total of 2,344 acres within the boundary of the Reese Canyon RNA, of which 2,299 acres are public land (BLM) and 2,338 acres contain federal minerals.

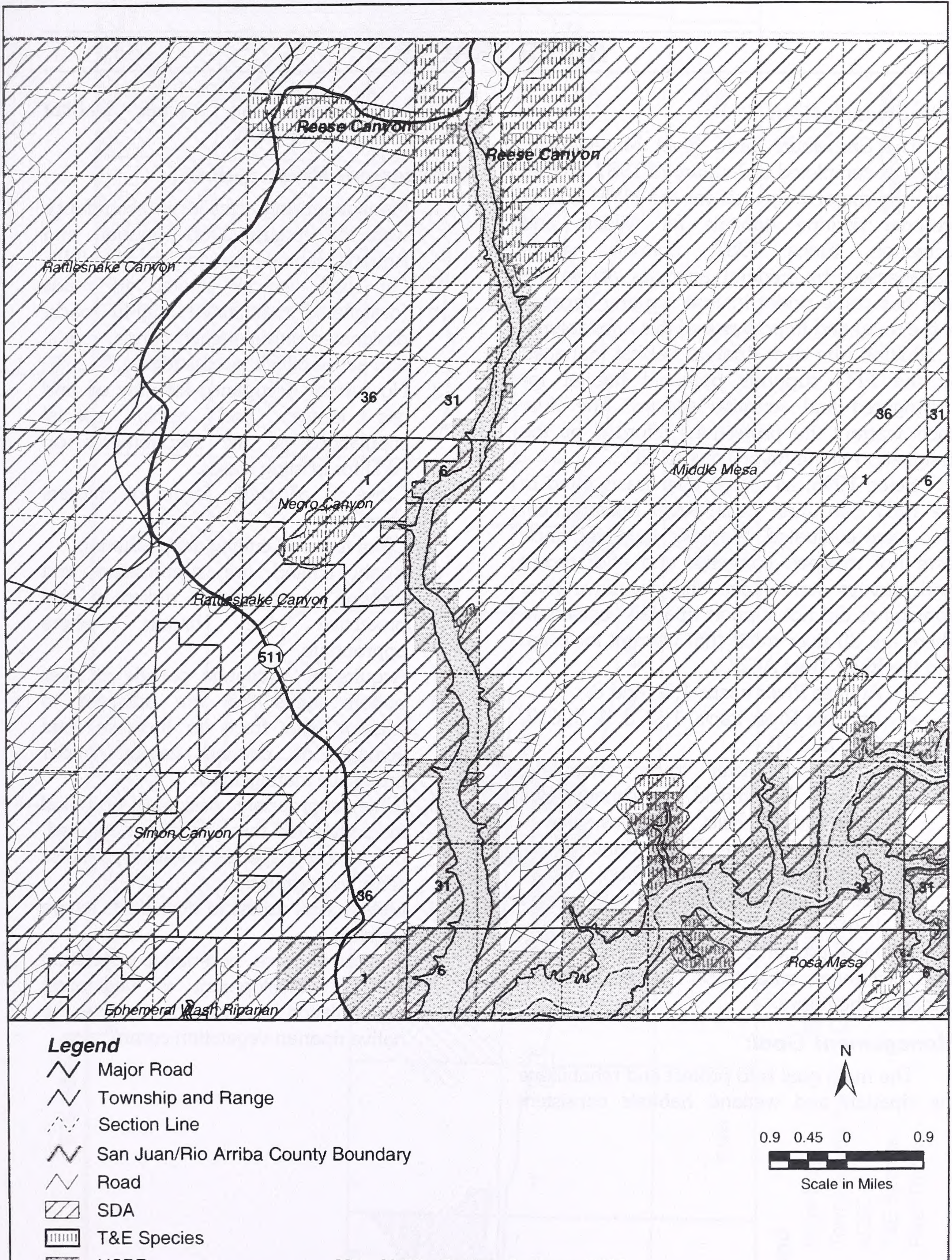
Reese Canyon RNA contains habitat for species federally listed under the Endangered Species Act.

Management Goal:

The Reese Canyon RNA provides opportunities for the reintroduction of sensitive plants and the protection of wintering bald eagles.

Management Prescriptions:

1. Apply Controlled Surface Use constraints to current leased acreage.
2. Close to new oil and gas leasing.
3. Close to all other forms of mineral entry.
4. Land ownership not available for disposal.
5. ROWs permitted with special stipulations and mitigation.
6. OHV limited to maintained roads for the entire area.
7. Designate as Class II VRM Area.
8. Close to wood cutting and gathering except for administrative purposes with approval of wildlife staff.
9. Any vegetative management must benefit the purpose of the RNA. Apply limited fire suppression.
10. Open to livestock grazing.
11. Designate noise receptor points at identified cliff habitat for the protection of wintering bald eagles.



Map N-38: Reese Canyon RNA

RIVER TRACTS

Site Description:

The San Juan Basin River Management Plan was completed in January of 1987. At that time, the major emphasis for the HMP was to preserve riverine habitats for wildlife and recreation. Since 1987, riparian habitat management by Federal agencies across the west has come under intense scrutiny because of the rarity and importance of this habitat type. In addition, the river riparian habitat managed by the FFO supports potential habitat for endangered and sensitive species. The river tracts warrant the protections afforded by the designation of the River Tract ACEC.

Since 1996, all of the river tracts listed in the 1987 San Juan Basin River Management Plan were evaluated. Some of the river tracts were not mapped correctly, and after recent land surveys some tracts did not have river frontage or did not support riparian vegetation. There are 30 river tracts that warrant inclusion into the River Tract ACEC:

- Animas River tracts: 1, 2, and 8.
- La Plata River tracts: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.
- San Juan River tracts: Archuleta, Blanco, Bloomfield, Bradshaw, Bull Calf, Desert Hills, Gallegos, Jewett Valley, Kutz, La Plata, Santa Rosa, Schneider, Simon Canyon, South Bloomfield, Subdivision, Valdez, and Wheeler.

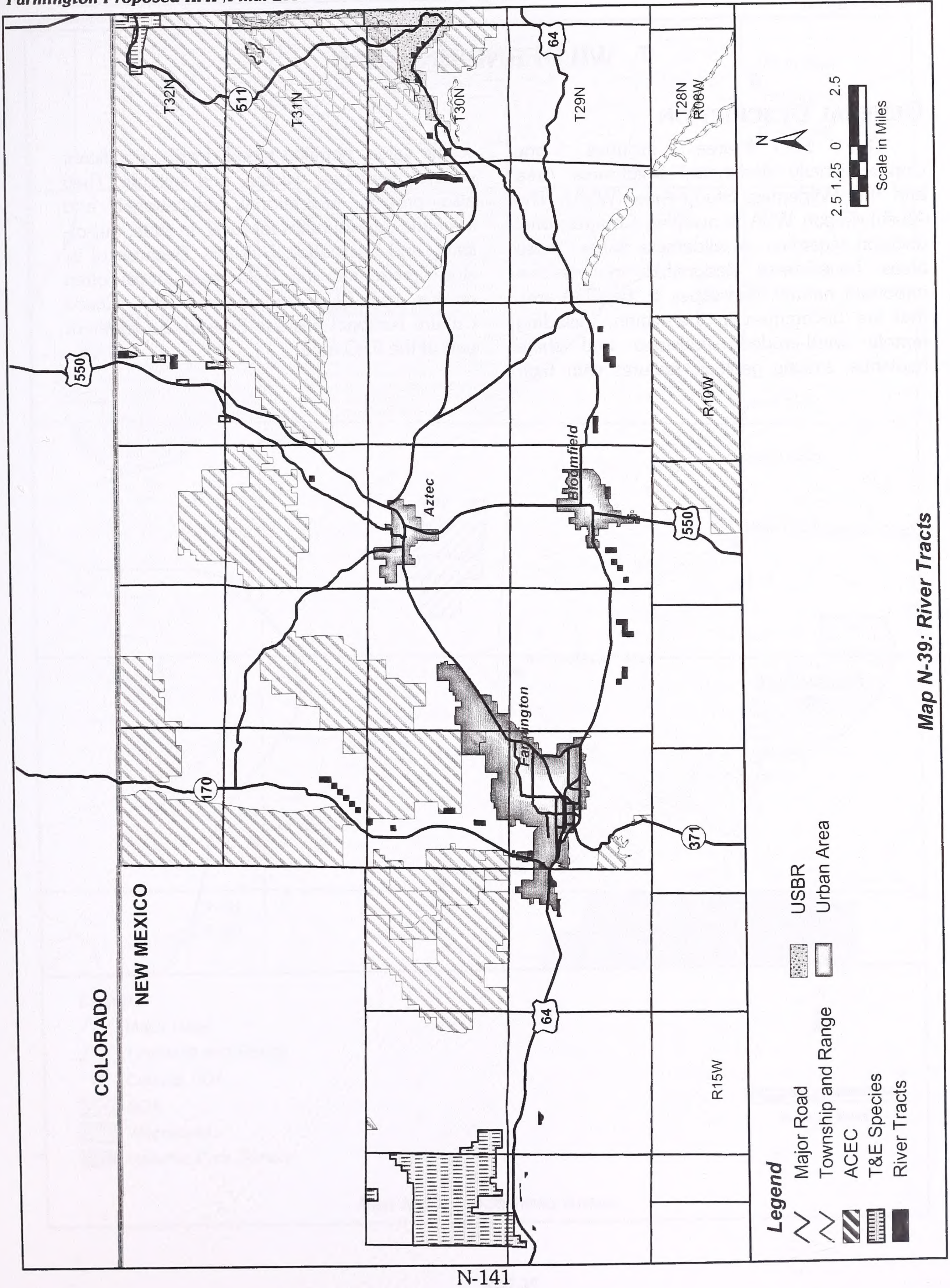
As river properties are acquired through land exchanges, other tracts may be added to this list in the future.

Management Goal:

The main goal is to protect and rehabilitate the riparian and wetland habitats consistent with the Riparian and Aquatic Habitat Management Plan of 2000.

Management Prescriptions:

1. Manage grazing activities in accordance with the August 2000 Riparian and Aquatic Habitat Management EIS/HMP.
2. Off road vehicles limited to roads (designated maintained county roads, designated unmaintained county roads, and active oilfield access roads).
3. No surface occupancy for new oil and gas leases, and apply special stipulations or site requirements on APD for existing leases.
4. Close to all other forms of mineral entry.
5. Close to wood cutting and gathering.
6. Apply limited fire suppression and develop plans for fuel reduction and protective fire breaks where appropriate.
7. Acquire by exchange parcels of river bottom lands that are adjacent to existing river tracts to increase total acreage of riverine habitat under protective management.
8. When appropriate, designate occupied federally listed threatened, endangered, or proposed species habitats as noise sensitive receptors.
9. Obtain legal access to river tracts where possible.
10. Analyze invasive, non-native vegetation for the development of vegetation manipulation projects to improve the native riparian vegetation community.

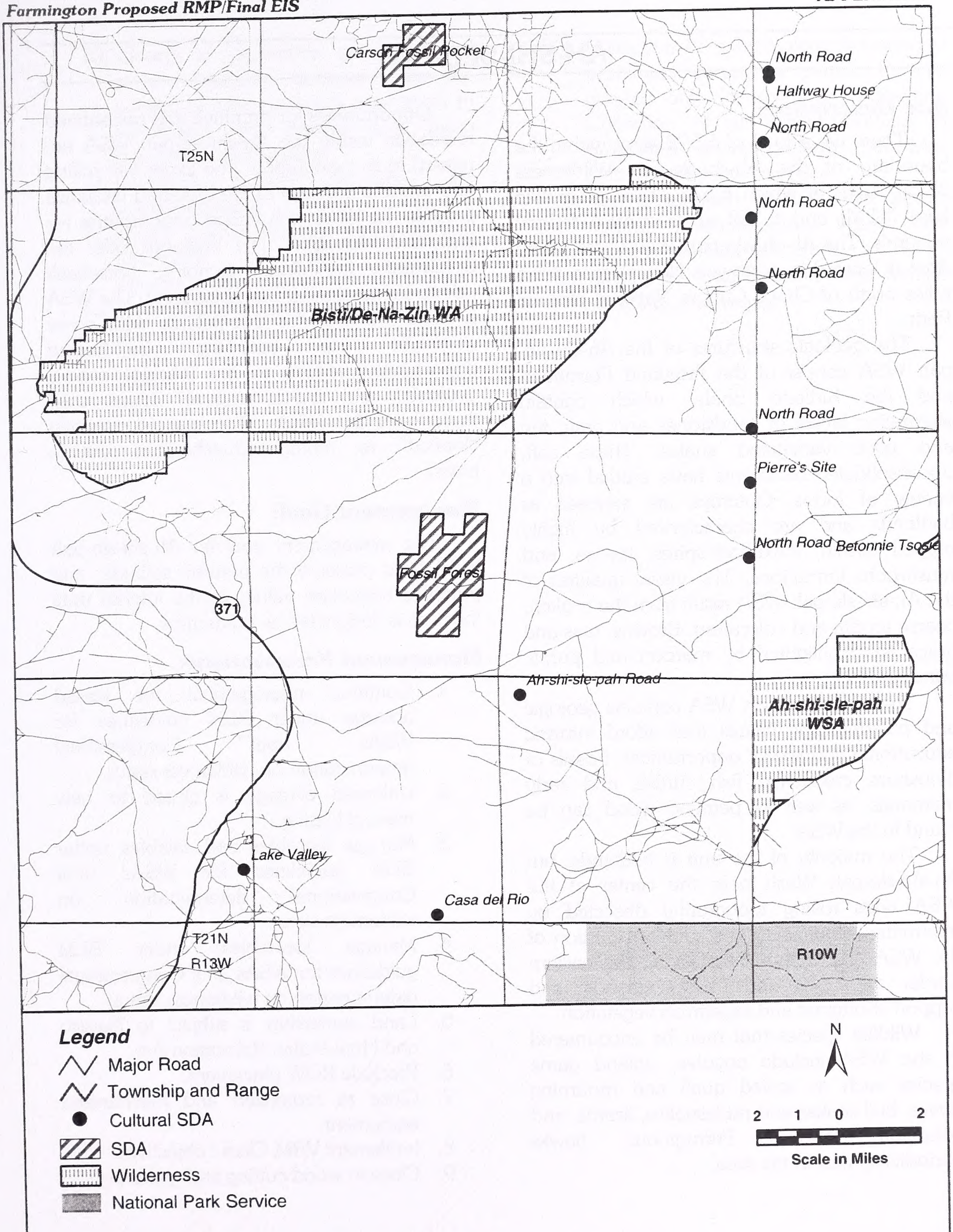


Map N-39: River Tracts

7. WILDERNESS AREAS

GENERAL DESCRIPTION

The FFO area includes one Congressionally designated Wilderness Area and one Wilderness Study Area (WSA). The Ah-shi-sle-pah WSA is awaiting Congressional decision regarding its wilderness status. These areas have been designated to preserve important natural landscapes in the FFO area that are uncommon in the region, including remote wind-eroded sandstone and shale badlands, striking geologic features with high scenic value, petrified wood, fossils, significant cultural resources, wildlife, and solitude. They also provide recreational, educational, and scientific opportunities for local, in-state, out-of-state, and international visitors. Because of its close proximity, the Wilderness Areas often receive use from people who visit Chaco Culture National Historic Park in the southern part of the FFO area.



Map N-40: Wilderness Areas

AH-SHI-SLE-PAH

Site Description:

There are a total of 6,592 acres within the boundary of the Ah-shi-sle-pah Wilderness Study Area, of which 6,516 acres are public land (BLM) and 6,552 acres contain federal minerals. The Ah-shi-sle-pah Wilderness Study Area is located in northwest New Mexico three miles north of Chaco Culture National Historic Park.

The geologic structures of the Ah-shi-sle-pah WSA consist of the Fruitland Formation and the Kirtland Shale, which contain alternating layers of sandstones and gray, tan and olive variegated shales. These soft, unconsolidated sediments have eroded into a variety of forms. Outcrops are exposed as badlands and are characterized by highly rugged terrain, including spires, towers, and mushroom formations. The visual qualities of the Ah-shi-sle-pah WSA result from the broken, coarse terrain and coloration. Browns, tans and grays are highlighted by maroon and purple banding.

The Ah-shi-sle-pah WSA contains geologic and paleontologic values that afford intrinsic educational and scenic opportunities. Fossils of dinosaurs, crocodiles, fish, turtles, and early mammals, as well as petrified wood can be found in the WSA.

The majority of the unit is badlands, but Ah-shi-sle-pah Wash near the center of the WSA adds rolling topography dissected by intermittent drainages. The southern portion of the WSA and a thin band along the eastern border are open and rolling uplands, and support shortgrass and sagebrush vegetation.

Wildlife species that may be encountered in the WSA include coyotes, upland game species such as scaled quail and mourning doves, bull snakes and rattlesnakes, lizards, and cottontail rabbits. Ferruginous hawks periodically nest in the area.

Opportunities for primitive and unconfined recreation within the Ah-shi-sle-pah WSA are related to its topography. The expansive rolling hills and the intricacy of the dissected badlands provide the WSA with varied opportunities for dispersed recreation. The badlands offer the opportunity for hiking, camping, horseback riding, sightseeing, and photography. The WSA is used primarily for day hiking, with some overnight use occurring. Sightseeing opportunities related to the inherent scenic, geologic, and paleontological values exist throughout the WSA. The area is currently "limited" to motorized/mechanized vehicle travel.

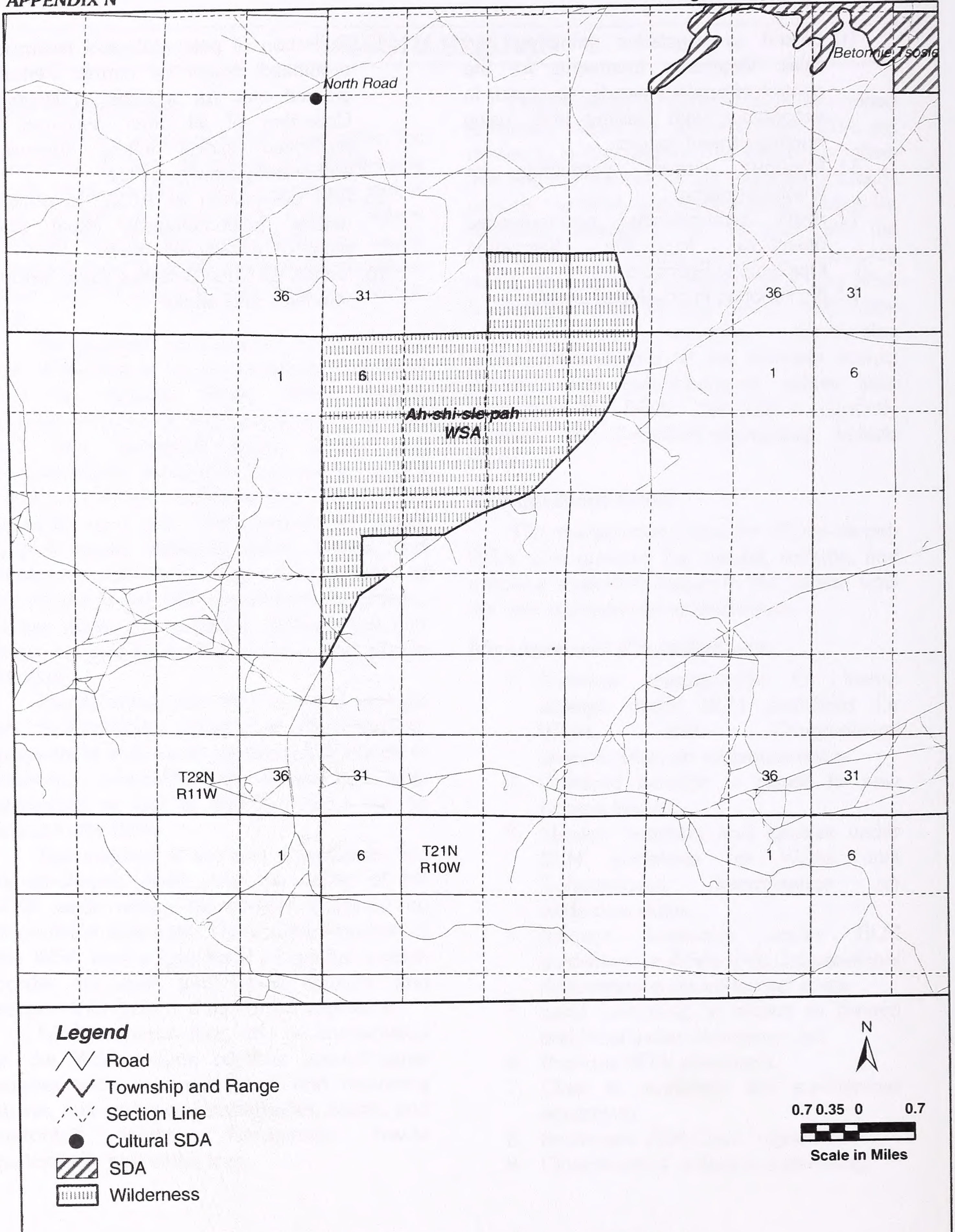
Management Goal:

The management goal for Ah-shi-sle-pah WSA is to preserve the natural, solitude, and primitive recreation values in the interim until the area is designated as Wilderness.

Management Prescriptions:

1. Continue management for leased acreage under BLM guidelines for WSAs until Congressional determination on wilderness status.
2. Unleased acreage is closed to new mineral leasing.
3. Manage leasables and salables under BLM guidelines for WSAs until Congressional determination on wilderness status.
4. Manage locatables under BLM guidelines for WSAs until Congressional determination on wilderness status.
5. Land ownership is subject to Navajo and Hopi Indian Relocation Act.
6. Preclude ROW placement.
7. Close to motorized and mechanized equipment.
8. Implement VRM Class I objectives.
9. Close to wood cutting and gathering.

10. Closed to vegetative gathering and sales. Vegetative treatments for the control of noxious weeds may occur in accordance with existing laws, using nonimpairment concept.
11. Continue current permitting for livestock grazing.
12. Apply semi-primitive non-motorized objectives to the Recreation Opportunity Spectrum.
13. No shooting in developed areas.
14. Collection of paleontological resources prohibited except by permit. Permits granted only for scientific endeavors. Collection of all other resources is prohibited except where otherwise authorized by law or policy.
15. Add designation as ACEC to protect natural, paleontological, visual, and primitive recreational values.
16. Identify as Noise Sensitive Area. Stricter standards may apply.



Map N-41: Ah-shi-sle-pah Wilderness Study Area

BISTI/DE-NA-ZIN

Site Description:

There are a total of 44,792 acres within the boundary of the Bisti/De-Na-Zin Wilderness Area, of which 38,381 acres are public land (BLM) and 39,047 acres contain federal minerals. Visitor use at the Bisti/De-Na-Zin Wilderness Area increases annually. The area provides recreational, educational, and scientific opportunities for local, in-state, out-of-state, and international visitors. Because of its close proximity, the wilderness often receives use from people who visit Chaco Culture National Historic Park. The Bisti/De-Na-Zin provides an opportunity for the public to enjoy a variety of recreational activities and challenges, including hiking, backpacking, photography, viewing of petrified wood, fossils, and wildlife, and enjoying solitude.

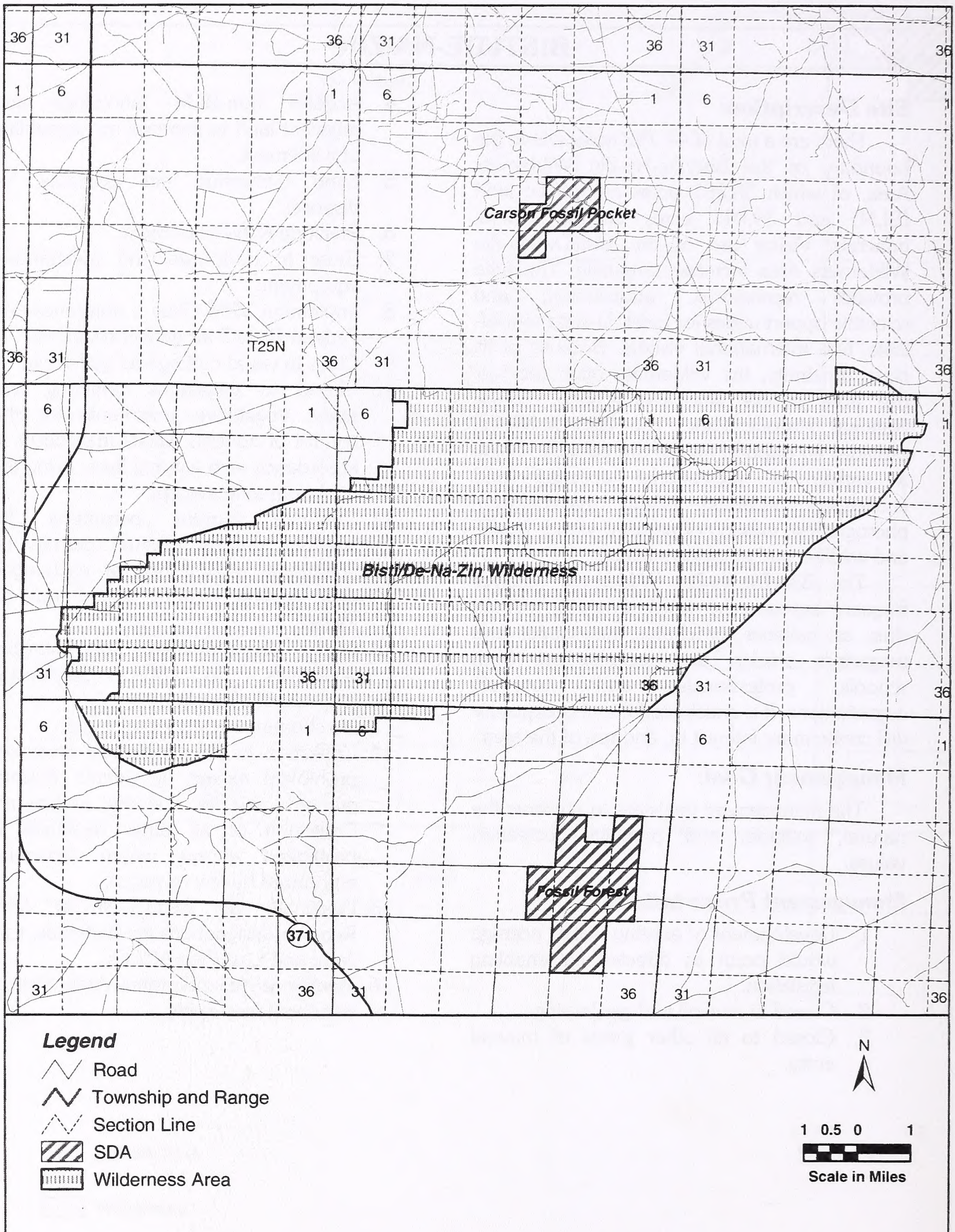
The Bisti/De-Na-Zin Wilderness receives frequent exposure by word-of-mouth, internet sites, art galleries, brochures, newspaper and magazines articles, and receives use from schools, professionals, and nonprofit organizations. It is anticipated that this exposure will create more interest in, and use of the area.

Management Goal:

The management goals are to preserve the natural, solitude, and primitive recreation values.

Management Prescriptions:

1. Development of existing leased acerage would occur as directed by enabling legislation.
2. Closed to new oil and gas leasing.
3. Closed to all other forms of mineral entry.
4. Acquire non-BLM inholdings and adjacent land to increase manageability of wilderness.
5. Land ownership not available for disposal.
6. Preclude ROW placement.
7. Close to motorized and mechanized equipment.
8. Implement VRM Class I, objectives and Federal Class II air quality standards.
9. Close to wood cutting and gathering.
10. Closed to vegetative gathering and sales. Vegetative treatments for the control of noxious weeds may occur in accordance with existing laws, using the minimum tool concept.
11. Continue current permitting for livestock grazing. Should permits be voluntarily relinquished or exchanged new grazing permits would not be issued.
12. Apply semi-primitive non-motorized objectives to the Recreation Opportunity Spectrum.
13. No shooting in developed areas.
14. Collection of paleontological resources prohibited except by permit. Permits granted only for scientific endeavors. Collection of all other resources is prohibited except where otherwise authorized by law or policy.
15. Designate as Bisti/De-Na-Zin WA. Remove designations for Badlands, Log Jam, and Lost Pine ACECs.
16. Identify as Noise Sensitive Area. Stricter standards may apply.



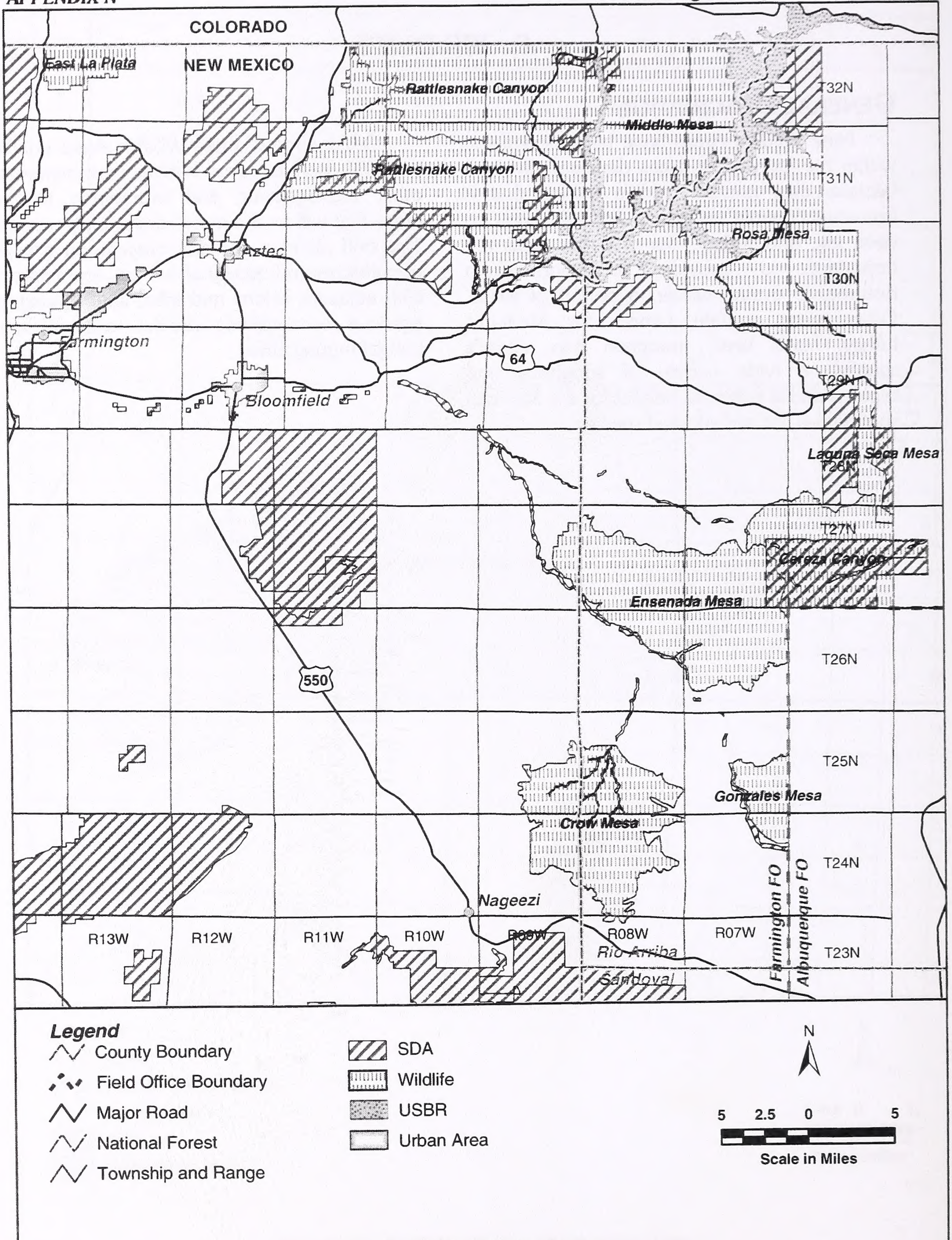
Map N-42: Bisti/De-Na-Zin Wilderness Area

8. WILDLIFE

GENERAL DESCRIPTION

Nine Wildlife Areas have been designated within the high oil and gas development area because they contain wildlife habitat that is important mainly to game animals such as deer, elk, and turkey. Some of the areas are important to provide protection from disturbance during winter, a period of stress. Other areas contain habitat for Meriam's turkey, black bear, mountain lion, Abert's squirrel, a wide variety of songbirds and raptors, and is potential habitat for the Mexican spotted owl, an endangered species.

Designation of these Wildlife Areas enable the FFO staff to focus habitat improvements, other management, and monitoring to the areas that will be the most beneficial to wildlife. The staff plans to continue monitoring wildlife populations and quality of habitat, and to work with adjacent federal and tribal land managing agencies to coordinate wildlife monitoring and habitat management.



Map N-43: Wildlife Areas

CEREZA CANYON WILDLIFE AREA

Site Description:

There are a total of 45,266 acres within the boundary of Cereza Canyon Wildlife Area, of which 17,912 acres are public land acres (BLM) and 27,868 acres are federal mineral acres.

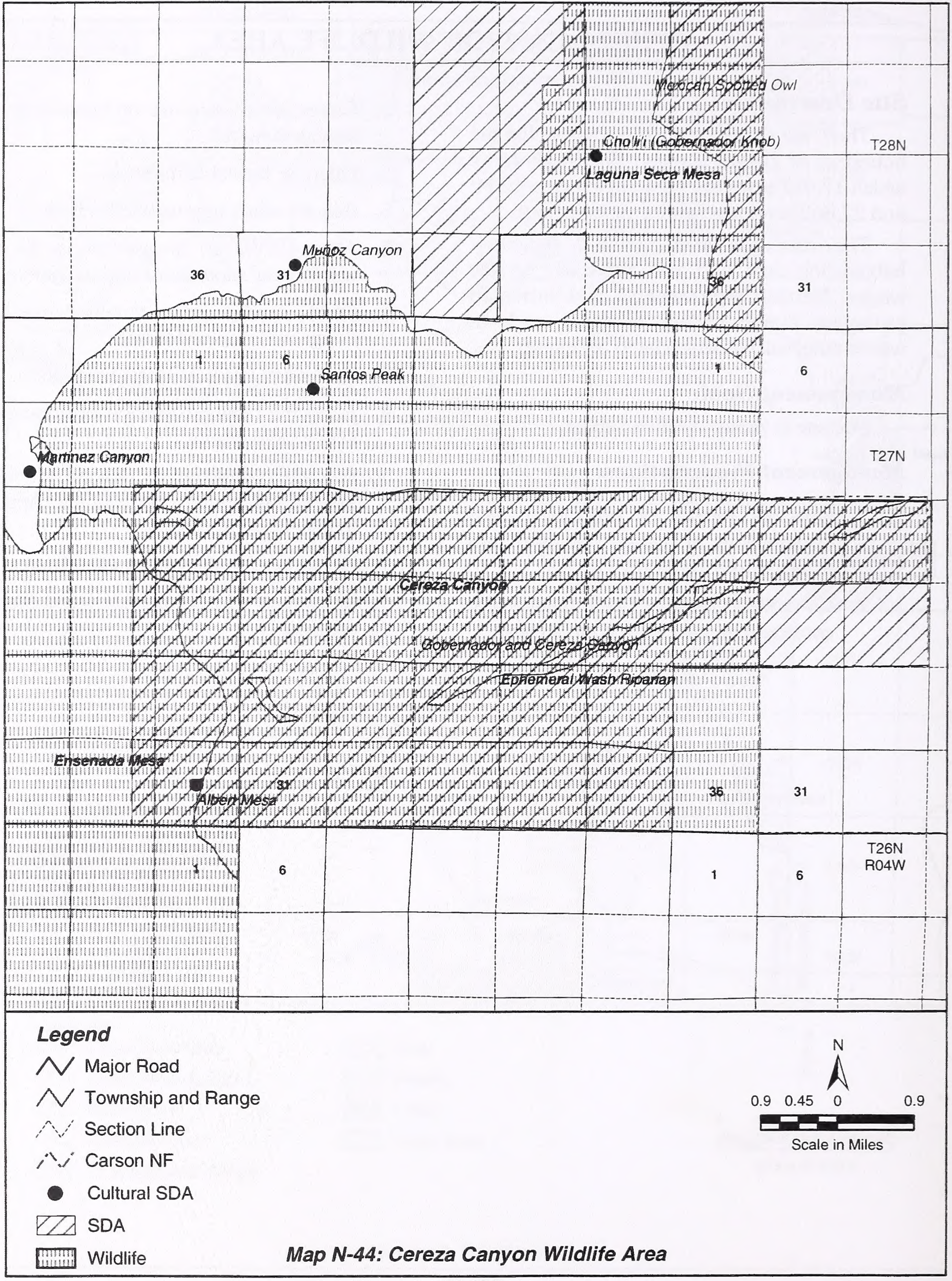
The area identified provides significant habitat for deer and elk, especially in the winter. Habitat improvements and increased protection during periods of stress, such as winter-time, will be beneficial to big game.

Management Goal:

Manage to protect wildlife habitat.

Management Prescriptions:

1. Seasonal restrictions on drilling and construction in leased oil and gas acreage from 12/01-03/31.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled surface use on leasable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
7. OHVs limited to maintained roads, designated routes and trails.
8. Implement Class IV VRM designation.
9. Allow the cutting/collection of firewood with a valid permit.
10. Manage vegetation to provide for the needs of wintering deer and elk. Apply limited fire suppression.
11. Continue permitted livestock grazing.
12. Implement wildlife habitat improvement projects.



Map N-44: Cereza Canyon Wildlife Area

CROW MESA

Site Description:

There are a total of 38,252 acres within the boundary of Crow Mesa Wildlife Area, of which 34,189 acres are public land acres (BLM) and 34,264 acres are federal mineral acres.

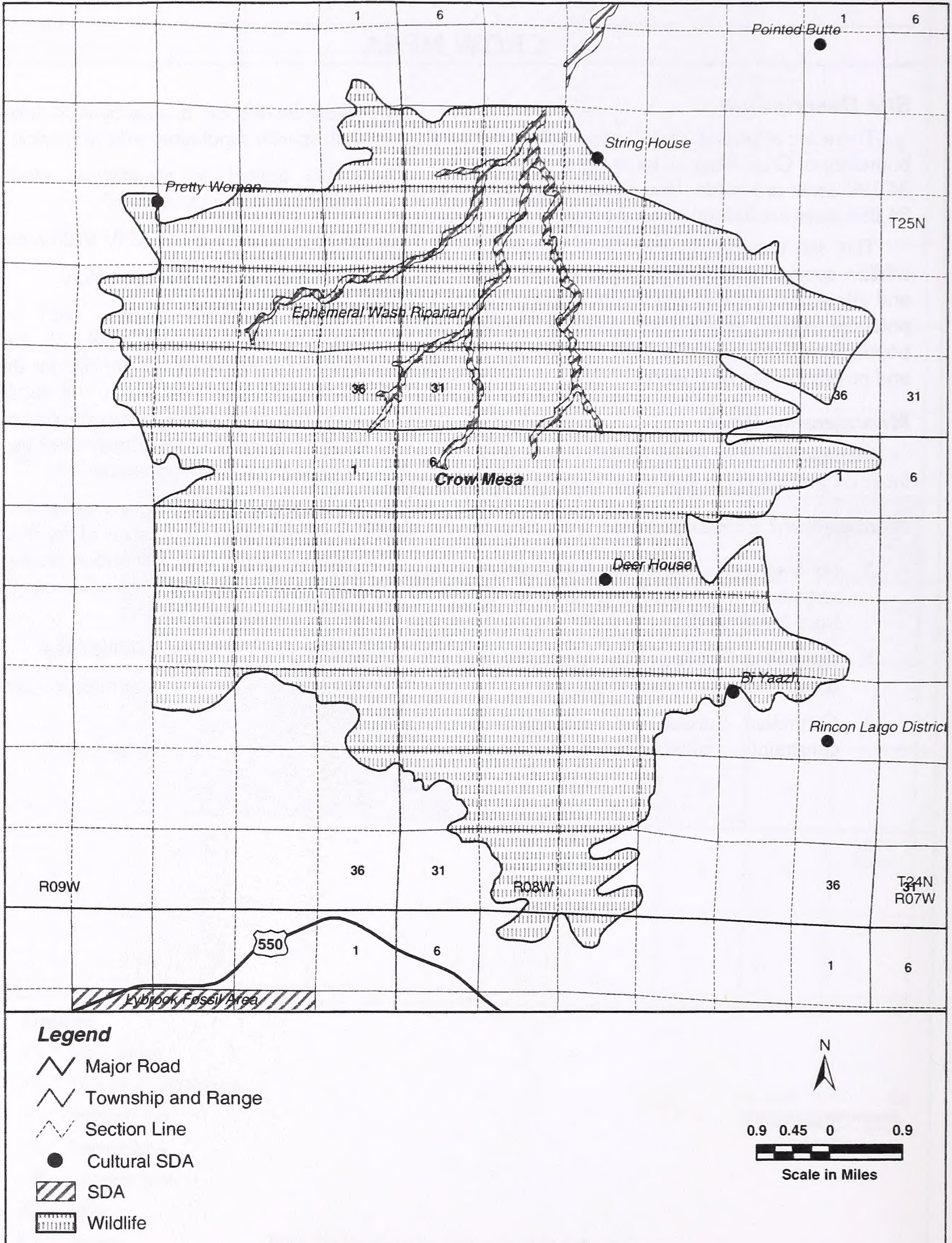
This site provides habitat for a variety of wildlife species. Resident populations of deer and elk remain static to slightly increasing. The potential exists to further increase these populations if additional habitat improvements and protection can be provided.

Management Goal:

Manage the Crow Mesa Wildlife Area with a focus on protecting big game and their habitat.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/01-03/31.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use management constraint on mineral leasing and sales.
4. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
5. OHVs limited to maintained roads, designated routes and trails.
6. Designate as Class III and IV VRM area.
7. Allow limited firewood collection.
8. Manage browse species such as antelope bitterbrush, big sagebrush, and mountain mahogany to provide for the fall/winter use of deer. Maintain adequate herbaceous forage for elk use year-long and spring/summer deer use. Apply limited fire suppression.
9. Livestock grazing by signed agreement. Approximately 14,000 acres of the SMA has been retired from livestock grazing. The remainder of the SMA will continue permitted livestock grazing.
10. Delineate Crow Mesa Wildlife Area.
11. Implement wildlife habitat improvement projects.



Map N-45: Crow Mesa Wildlife Area

EAST LA PLATA

Site Description:

There are a total of 7,159 acres within the boundary of East La Plata Wildlife Area, of which 5,895 acres are public land acres (BLM) and 5,814 acres are federal mineral acres.

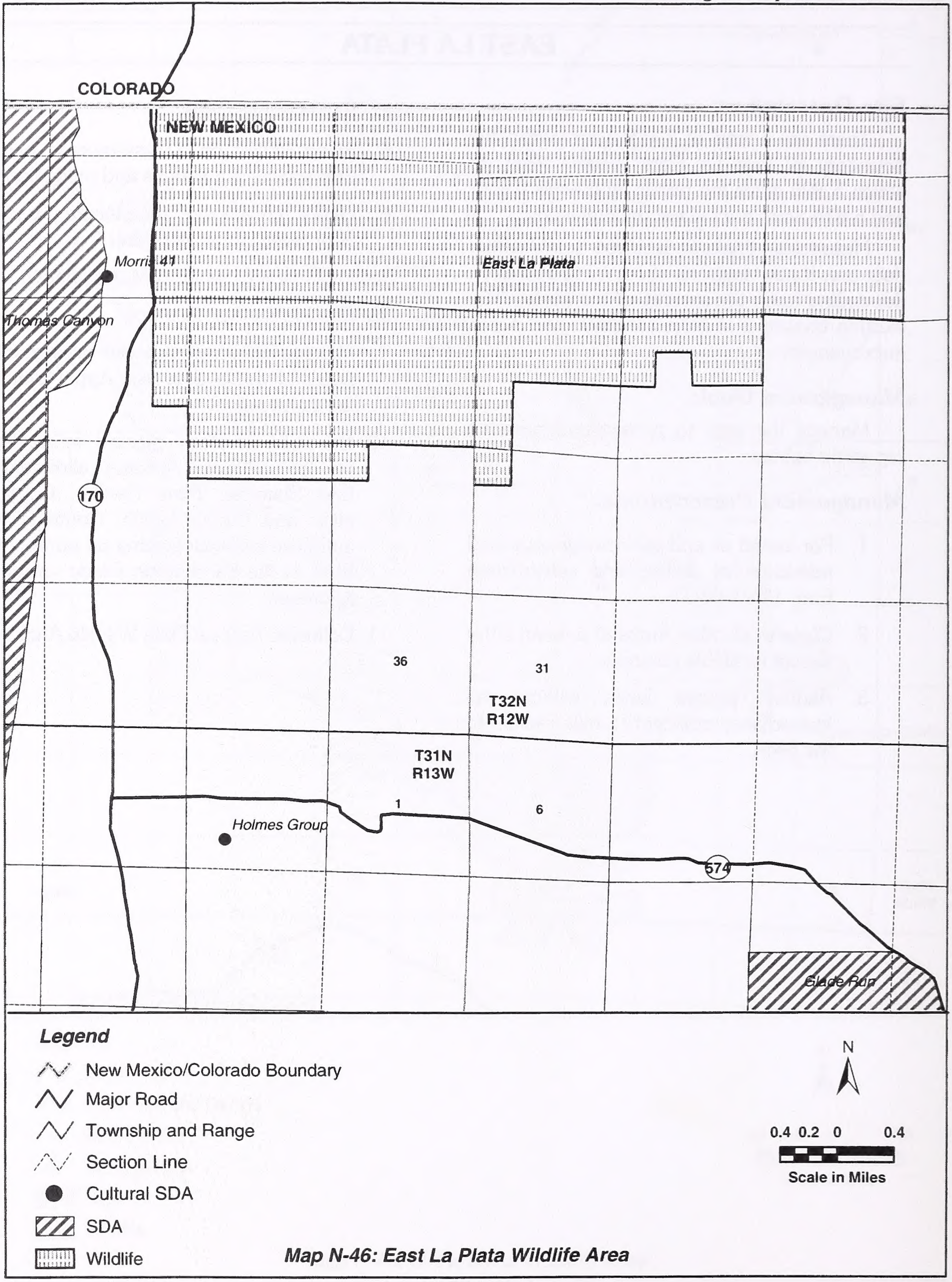
Historically, this area received heavy winter deer use. It now supports about 60 to 100 deer, depending upon the severity of the winter. The existing browse is in poor condition and needs improvement.

Management Goal:

Manage the area to protect and preserve big game habitat.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction of drilling and construction from 12/01-03/31.
2. Close to all other forms of mineral entry except locatable minerals.
3. Acquire private lands within and immediately adjacent (1-mile radius) to the SMA.
4. Retain public lands.
5. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
6. OHVs limited to maintained roads, designated routes and trails.
7. Implement Class III VRM designation.
8. Close to fuelwood cutting.
9. Manage key browse species to meet the needs of winter deer use. Apply limited fire suppression.
10. Continue livestock grazing retirement on the following grazing allotments: East Stateline, Mine Facility, Coyote Hills, and Cinder Gulch. Continue to authorize livestock grazing on portion of SMA in the Farmington Glade Grazing Allotment.
11. Delineate East La Plata Wildlife Area.



Map N-46: East La Plata Wildlife Area

ENSENADA MESA

Site Description:

There are a total of 51,280 acres within the boundary of Ensenada Mesa Wildlife Area, of which 43,179 acres are public land acres (BLM) and 45,767 acres are federal mineral acres.

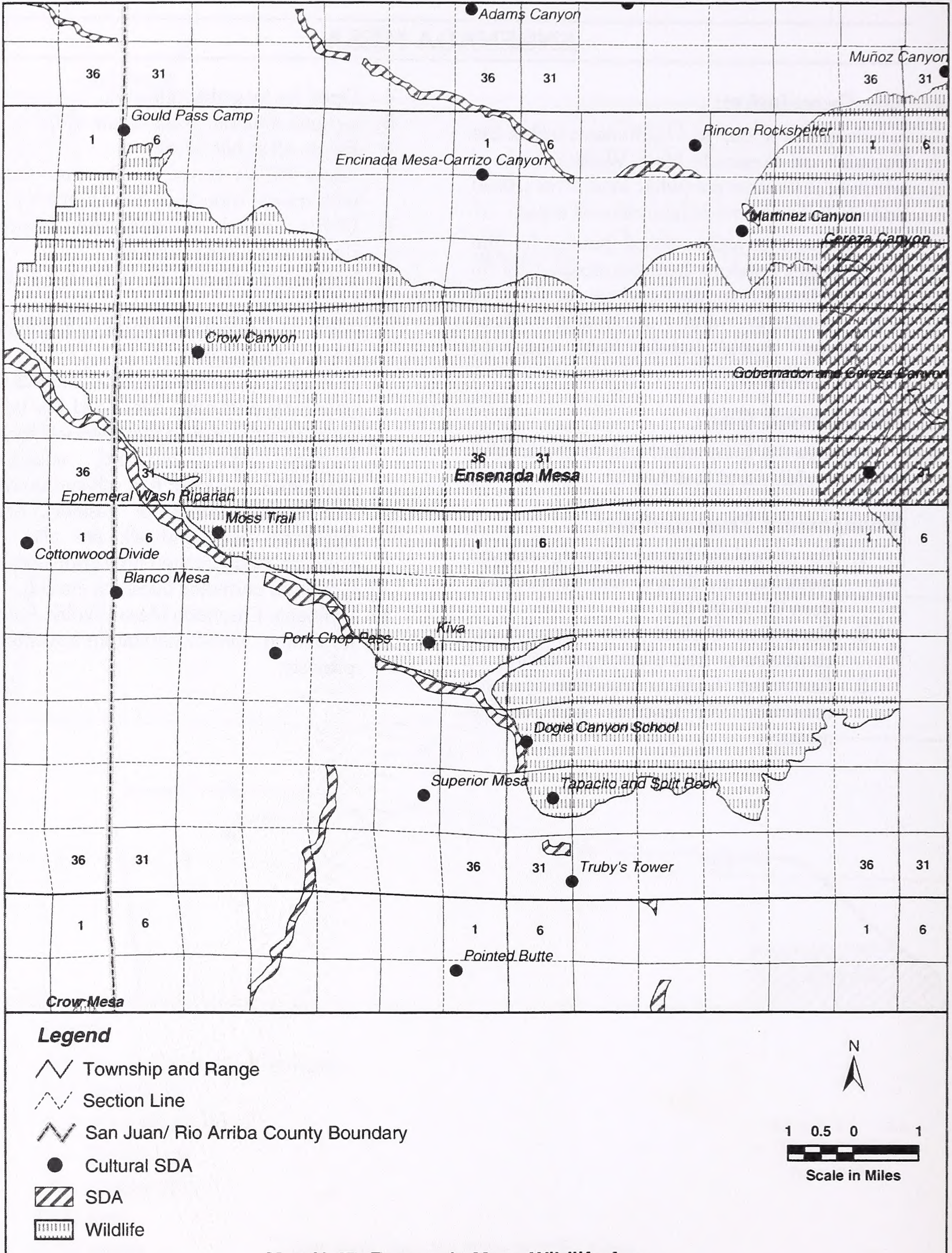
This area provides critical habitat for the FFO's largest antelope herd (approximately 60 animals). In addition, deer and elk use the area both year-long and seasonally. These populations should benefit from improved habitat conditions.

Management Goal:

Manage the Ensenada Mesa to protect and preserve wildlife and their habitat.

Management Prescriptions:

1. For oil and gas leased acreage, seasonal restriction on drilling and construction from 05/01-07/15.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use management constraint on leasable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Retain all public lands.
7. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
8. OHVs limited to maintained roads, designated routes and trails.
9. Implement Class III and IV VRM Designation.
10. Allow the cutting/collection of firewood with a valid permit.
11. Manage vegetation to meet the needs of year-long antelope, deer, and elk use. The primary focus in this SMA will be to increase the resident antelope population to where it is self-sustaining. The forage needs of resident and migratory deer and elk are also of concern. Apply limited fire suppression.
12. Continue permitted livestock grazing.
13. Delineate Ensenada Mesa Wildlife Area.
14. Implement wildlife habitat improvement projects.



Map N-47: Ensenada Mesa Wildlife Area

GONZALES MESA

Site Description:

There are a total of 7,499 acres within the boundary of Gonzales Mesa Wildlife Area, of which 6,076 acres are public land acres (BLM) and 6,103 acres are federal mineral acres.

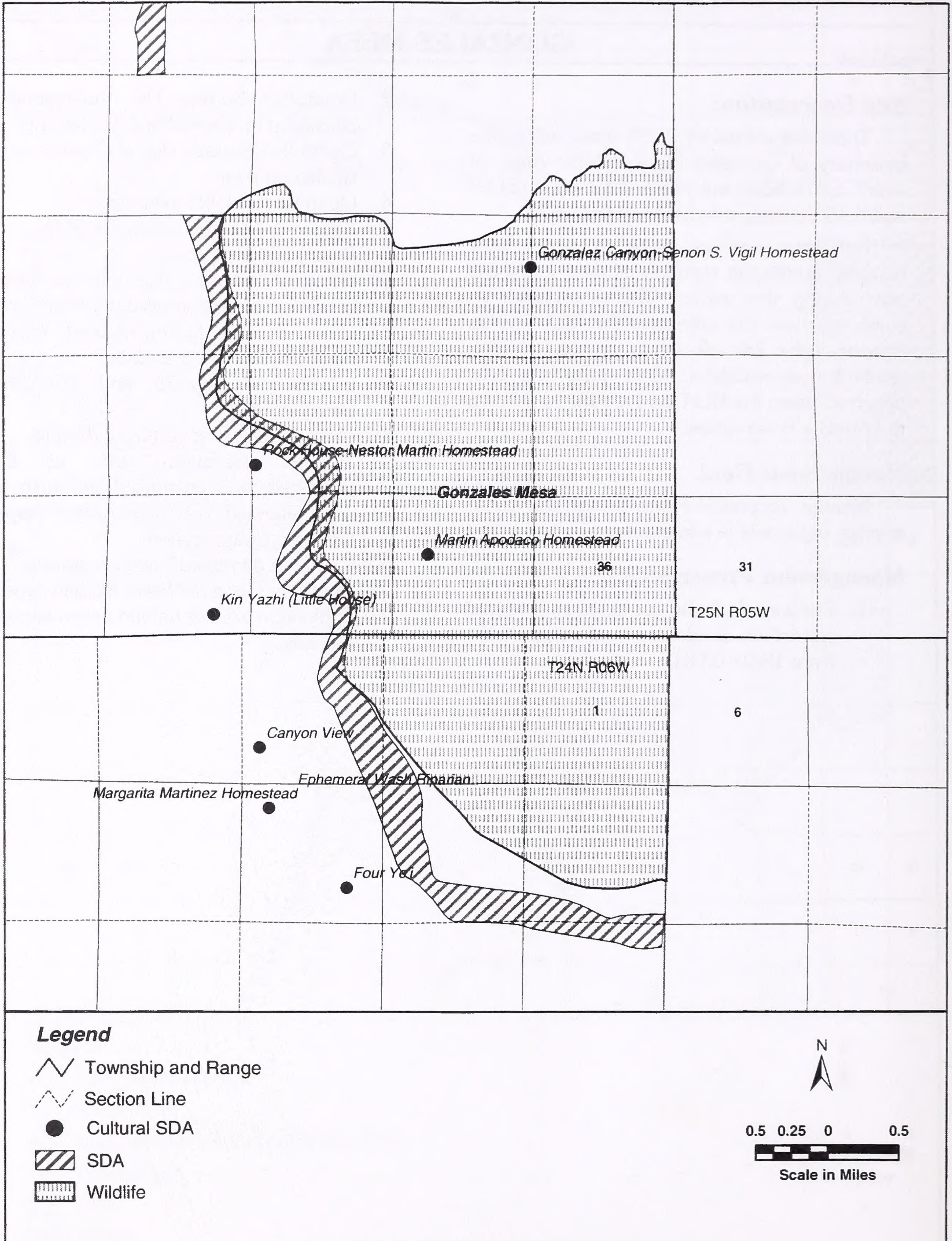
Helicopter surveys in recent years have revealed increasing numbers of deer using this area during the winter. This observation is consistent with the emphasis that the Jicarilla Apache Tribe has placed on increasing their resident deer numbers. Most likely, the deer observed using the BLM land are migrants from the Apache Reservation.

Management Goal:

Manage to preserve and protect big game species, especially in winter time.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/01-03/31.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use of leasable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Retain all public lands.
7. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
8. OHVs limited to maintained roads, designated routes and trails.
9. Implement Class III and IV VRM Designation.
10. Close to fuelwood cutting/gathering.
11. Manage vegetation such as big sagebrush and antelope bitterbrush to meet the needs of wintering deer. Apply limited fire suppression.
12. Continue permitted livestock grazing.
13. Delineate Gonzales Mesa Wildlife Area.
14. Implement wildlife habitat improvement projects.



Map N-48: Gonzales Mesa Wildlife Area

LAGUNA SECA MESA

Site Description:

There are a total of 9,211 acres within the boundary of Laguna Seca Mesa Wildlife Area, of which 7,460 acres are public land acres (BLM) and 8,124 acres are federal mineral acres.

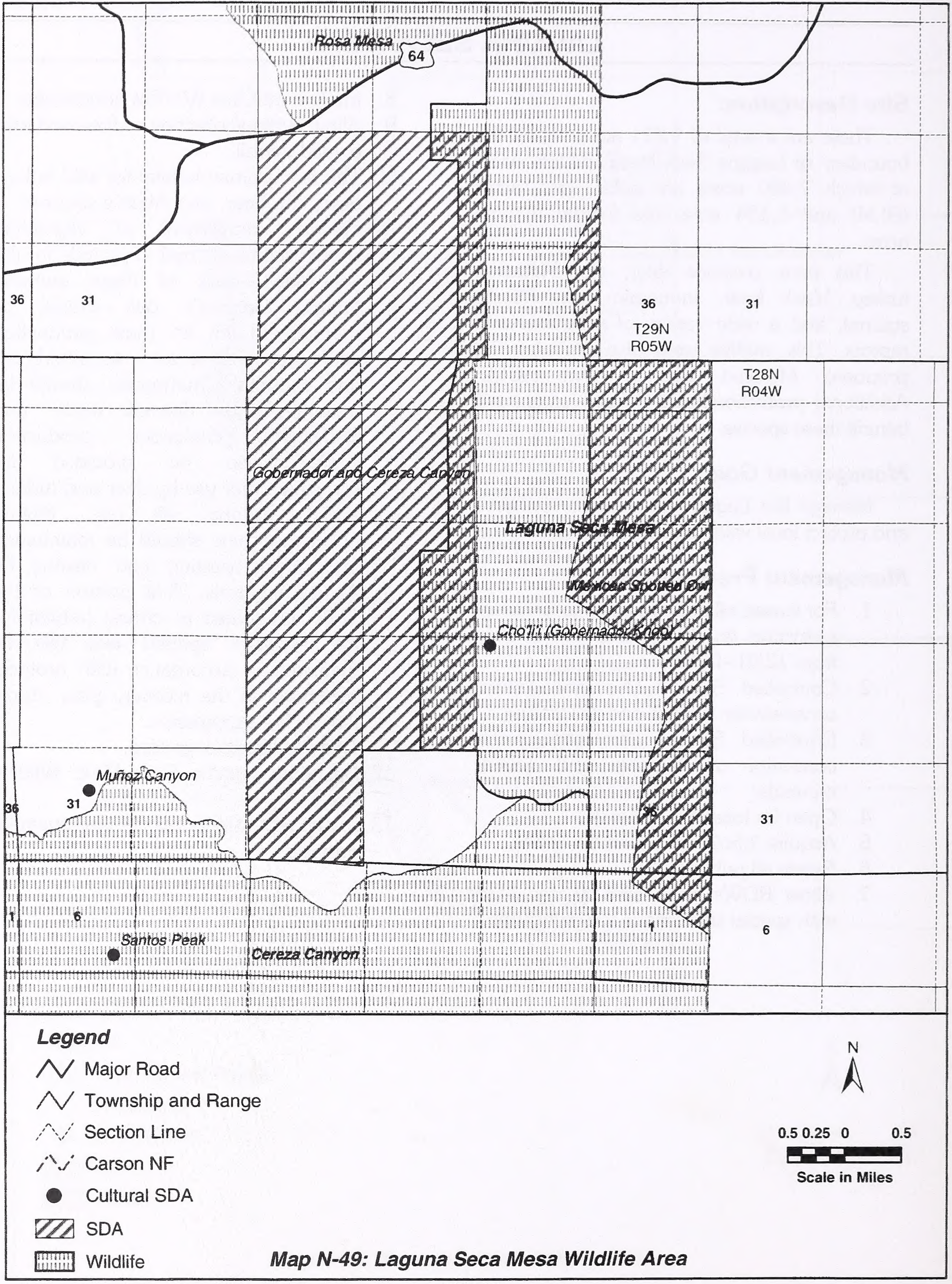
This area contains deer, elk, Meriam's turkey, black bear, mountain lion, Abert's squirrel, and a wide variety of songbirds and raptors. This wildlife area also contains the proposed Mexican Spotted Owl ACEC. Additional protection/habitat improvement will benefit these species.

Management Goal:

Manage the Laguna Seca site to preserve and protect local wildlife and their habitat.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/01–06/15.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use management constraint on leasable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Retain all public lands.
7. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
8. Implement Class IV VRM designation.
9. Allow cutting/collection of firewood with a valid permit.
10. This is important habitat for wild turkey, deer, elk, bear, and Abert's squirrels. A diverse compliment of vegetation should be maintained to provide for the year-long needs of these animals. Mature Gambel's oak should be maintained for its mast production while key browse such as bitterbrush and mountain mahogany should be maintained for deer/elk winter use. Sufficient herbaceous production should also be provided for spring/summer use by deer and turkeys and year-long elk use. Mature ponderosa pine should be maintained for turkey roosting and nesting by Abert's squirrels. That portion of the SMA designated as critical habitat for the Mexican spotted owl will be managed in accordance with protocol contained in the recovery plan. Apply limited fire suppression.
11. Open to livestock grazing.
12. Delineate Laguna Seca Mesa Wildlife Area.
13. Implement wildlife habitat improvement projects.



Map N-49: Laguna Seca Mesa Wildlife Area

MIDDLE MESA

Site Description:

There are a total of 46,052 acres within the boundary of Middle Mesa Wildlife Area, of which 31,390 acres are public land acres (BLM) and 40,317 acres are federal mineral acres.

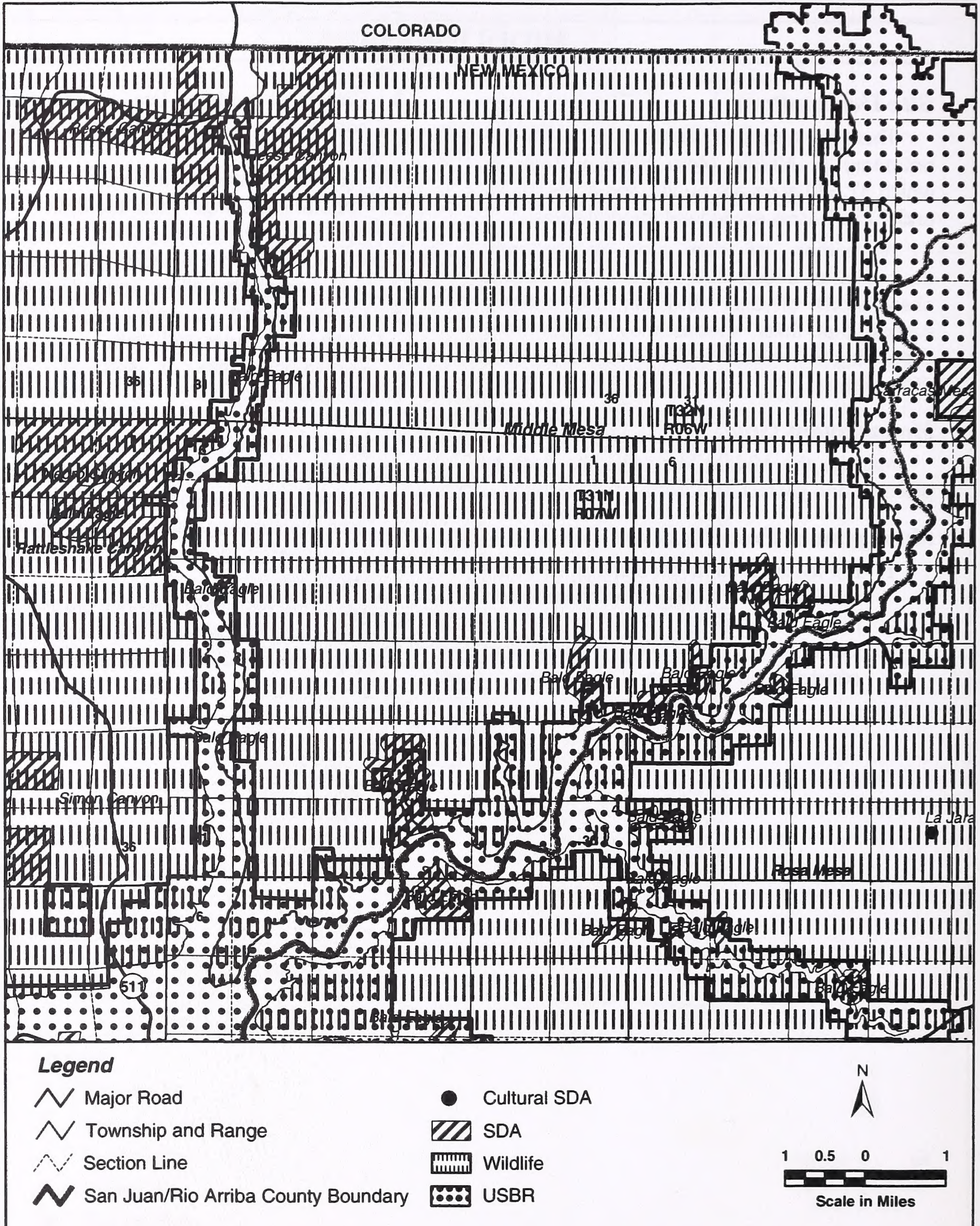
A portion of this area is currently designated as critical deer winter range. Recent observations of deer and elk use patterns suggest that these species may benefit from expanding the area designated as critical deer winter range.

Management Goal:

Manage the Middle Mesa Wildlife Area to preserve and protect wildlife and their habitat.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/01-03/31.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled surface Use management constraint on leaseable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Retain all public lands.
7. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
8. OHVs limited to maintained roads, designated routes and trails.
9. Implement Class II and III VRM designation.
10. Allow public wood collection with proper permit.
11. Manage key browse species (e.g., antelope bitterbrush, big sagebrush, and mountain mahogany) to meet the needs of wintering deer. Apply limited fire suppression.
12. Continue permitted livestock grazing.
13. Delineate Middle Mesa Wildlife Area.
14. Implement wildlife habitat improvement programs.



Map N-50: Middle Mesa Wildlife Area

RATTLESNAKE CANYON

Site Description:

There are a total of 110,160 acres within the boundary of Rattlesnake Canyon Wildlife Area, of which 89,173 acres are public land acres (BLM) and 98,276 acres are federal mineral acres.

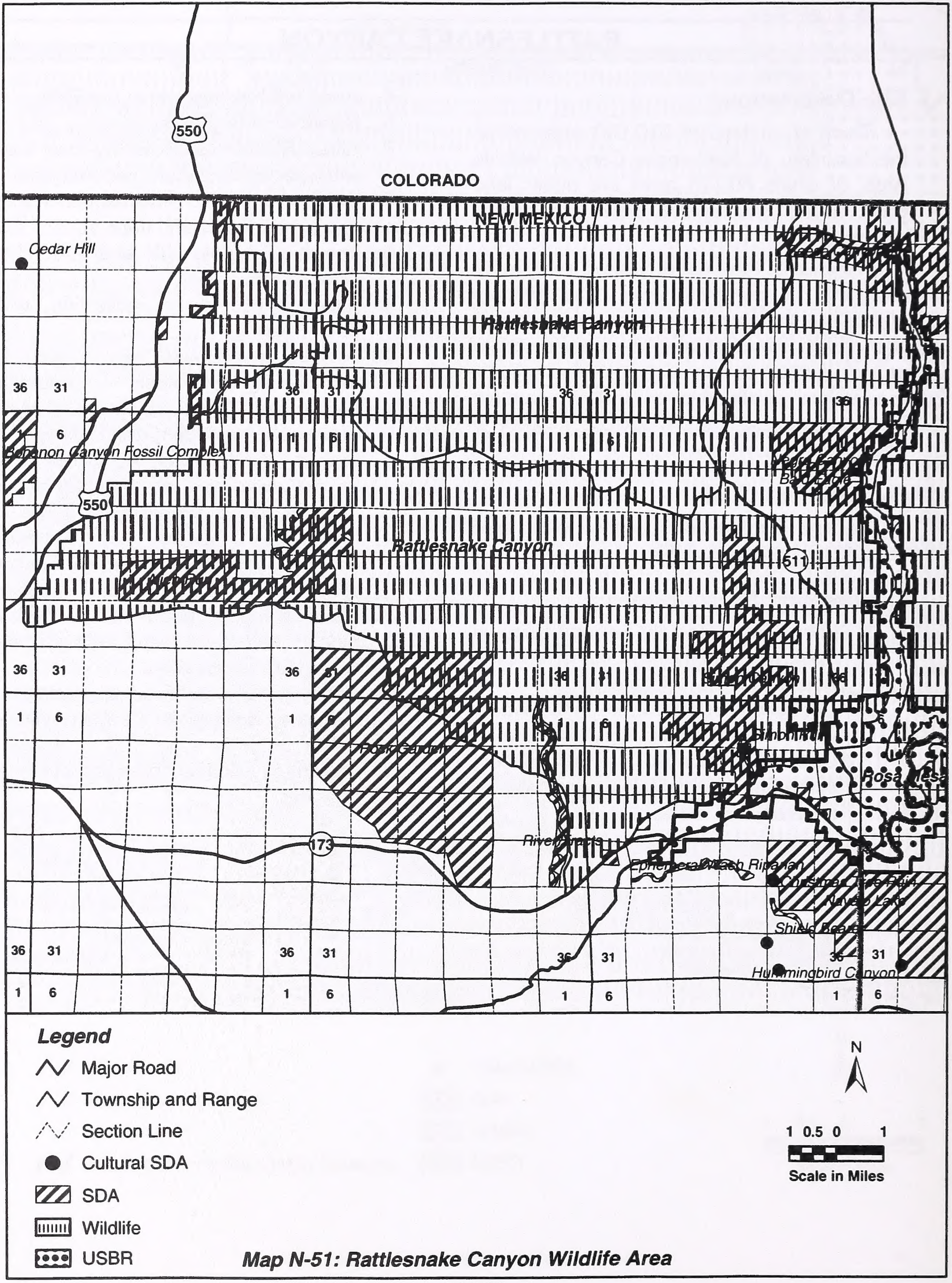
Historically, this area supported many more deer that it currently does. The primary objective is to increase resident deer numbers in this SMA. The area also has the potential to provide habitat to a variety of other wildlife species, such as elk, Meriam's turkey, mountain lion, and numerous avian species, if properly managed.

Management Goal:

Manage Rattlesnake Canyon to support increases in potential wildlife.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/1-3/31.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use management constraint on leasable and salable minerals.
4. Acquire inholdings within the SMA.
5. Retain all public lands.
6. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
7. OHVs limited to maintained roads, designated routes and trails.
8. Implement Class III and IV VRM Designation.
9. Allow public wood collection with proper permit.
10. Manage key browse species such as antelope bitterbrush, mountain mahogany and big sagebrush to meet the needs of wintering deer. Manage for mature Gambel's oak to provide mast for fall/winter use by wild turkeys. In addition, apply proper grazing use to herbaceous species to provide enhanced opportunity for wild turkey brood rearing in spring and summer. Maintain mature ponderosa and piñon pine for potential turkey roosting. Apply limited fire suppression.
11. Continue permitted livestock grazing.
12. Delineate Rattlesnake Canyon Wildlife Area.
13. Implement wildlife habitat improvement practices.



Map N-51: Rattlesnake Canyon Wildlife Area

ROSA MESA

Site Description:

The Rosa Mesa Wildlife Area has a total of 69,762 acres, of which 47,375 are public land acres (BLM) and 61,406 are federal mineral acres.

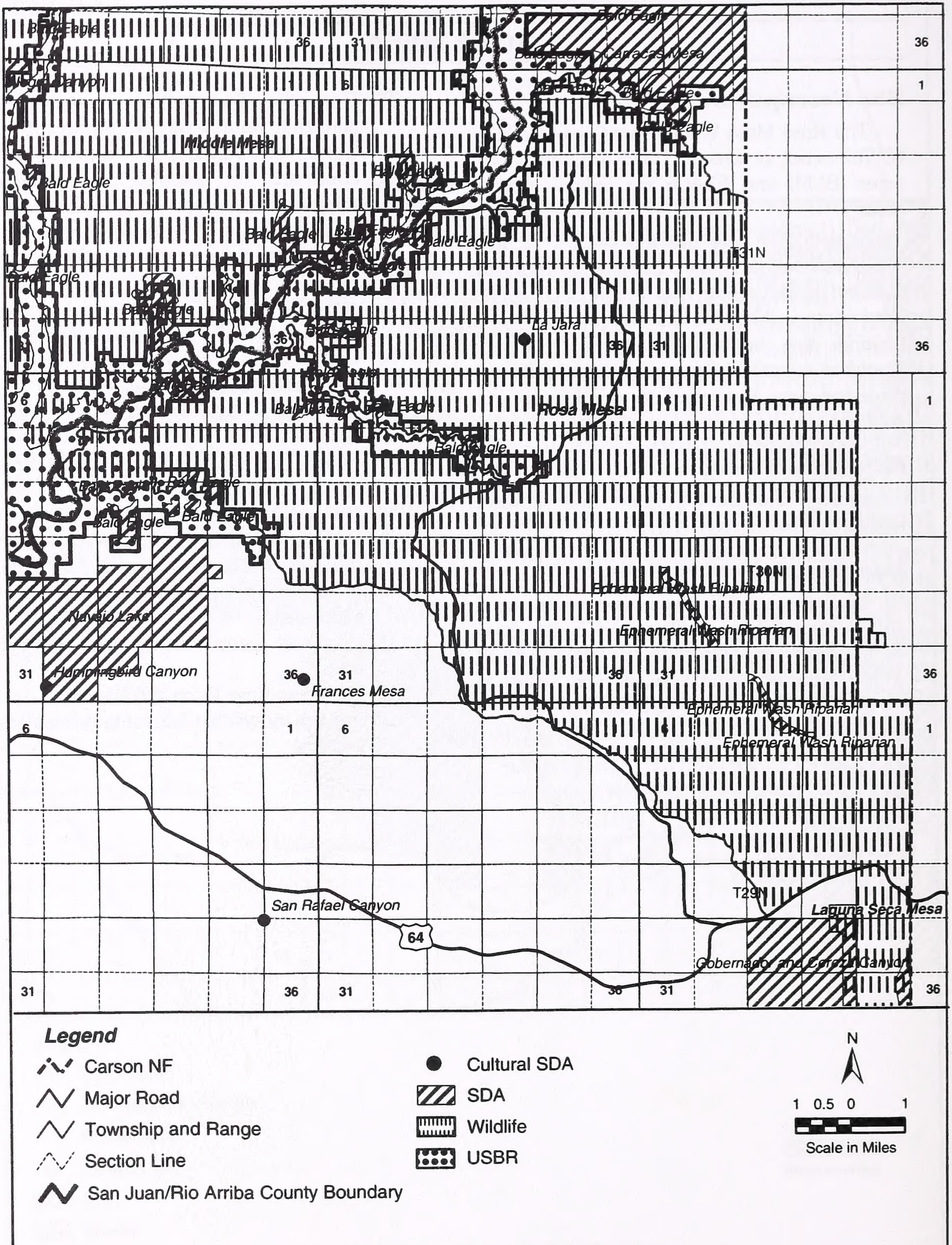
Over 1,500 deer use this area in winter. Their distribution is often dependent upon the severity of the winter and human activity. In hard winters, the deer push further south and beyond the boundaries of the currently identified critical big game habitat. Additional protected area is needed to provide for this contingency.

Management Goal:

Manage the site to protect and preserve wildlife habitat.

Management Prescriptions:

1. For leased oil and gas acreage, seasonal restriction on drilling and construction from 12/02-03/31 in the area north of Frances Canyon Wash and south of Cabresto/Bancos Canyons.
2. Controlled Surface Use management constraint on new oil and gas leasing.
3. Controlled Surface Use management constraint on leasable and salable minerals.
4. Open for locatable minerals.
5. Acquire inholdings within the SMA.
6. Retain all public lands.
7. Allow ROWs on a case-by-case basis with special stipulations and mitigation.
8. OHVs limited to maintained roads, designated routes and trails.
9. Implement Class II and IV VRM designation.
10. Allow public wood collection with proper permit.
11. Manage key browse species such as big sagebrush, antelope bitterbrush and mountain mahogany to meet the needs of wintering deer. Apply limited fire suppression.
12. Continue permitted livestock grazing area.
13. Delineate Rosa Mesa Wildlife Area.
14. Implement wildlife habitat improvement projects.



Map N-52: Rosa Mesa Wildlife Area

Appendix O
Bird Survey Data

Table O-1. Bird Point Count Survey Data—Farmington Field Office

Species	Spring 1999	Spring 2000	Spring 2001**	Spring 2002**	Winter 1999	Winter 2000	Winter 2001**	Winter 2002**
American Kestrel	1	1	2	5		1	1	
American Robin	5	4	5	3	7		10	
Ash-Throated Flycatcher	11	64	61	46				
Bewick's Wren	17	46	50	44	1	2	2	
Black-Billed Magpie		9	13	2			11	
Black-Chinned Hummingbird	1	4		1				
Black-Headed Grosbeak	5	36	15	17				
Black-Throated Gray Warbler	1	10		5				
Blue-Gray Gnatcatcher	5	2	4	11				
Brewer's Blackbird			12	1				
Brewer's Sparrow	9	21	18	8				
Broad-Tailed Hummingbird	6	5		2				
Brown-Headed Cowbird	1	11	18	36				
Bullock's Oriole		2	1	1				
Bushtit	12	20	25	2		10	10	
Canyon Wren	1	1			2			
Cassin's Kingbird		8	15	5				
Cedar Waxwing			22			33		
Chipping Sparrow	10	24	32	31				
Cliff Swallow	12	1	4	7				
Common Nighthawk	36		1	2				
Common Raven	10	6	63	13	8	30	14	

Species	Spring 1999	Spring 2000	Spring 2001**	Spring 2002**	Winter 1999	Winter 2000	Winter 2001**	Winter 2002**
Cooper's Hawk			1	1				
Dark-Eyed Junco	41	8	21		30	22	55	
Downy Woodpecker	2				1			
European Starling		1						
Evening Grosbeak						5		
Gambel's Quail		6	11	1				
Golden Eagle	1	1	1	1	1	4	5	1
Gray Flycatcher	32	41	19	34				
Gray Vireo	15	23	18	24				
Hairy Woodpecker		2	4			2	2	
Horned Lark	260	46	106	45			23	4
House Finch	38	33	49	43	4	9	6	14
House Wren				1				
Indigo Bunting			1					
Juniper Titmouse	45	18	19	13	12	8	3	
Kildeer	1	9	2					
Lark Bunting	5	2	17					
Lark Sparrow	4	19	36	21				
Lazuli Bunting				1				
Lesser Goldfinch	30	3	23	14				
Loggerhead Shrike	2	1		5		1	1	1
Long-Eared Owl		1						
Mountain Bluebird	45	20	19	18				563*

Species	Spring 1999	Spring 2000	Spring 2001**	Spring 2002**	Winter 1999	Winter 2000	Winter 2001**	Winter 2002**
Mountain Chickadee	40	11	12	8	14	8	6	
Mouring Dove	33	100	30	63				
Northern Flicker (Red-Shafted)	13	9	7	5	1	2	14	
Northern Goshawk	1							
Northern Mockingbird	1	9	14	11				
Northern Rough-Winged Swallow		25	26	22				
Peregrine Falcon	2							
Pigmy Nuthatch	55	8			71	2		
Pine Siskin	28		3				3	
Pinyon Jay	1	3	24					
Plumbeous Vireo	2	8	20	20				
Red Crossbill	1							
Red-Tailed Hawk	6	3	5	6		2	3	
Red-Winged Blackbird			1	7			6	
Rock Wren	1	1						
Rufous Hummingbird	2			2				
Sage Sparrow	7	22	54	51				2
Sage Thrasher	2		25	7				
Say's Phoebe	5		7	4				
Scale Quail		1						
Sharp-Shinned Hawk						1		
Song Sparrow						1	2	

Species	Spring 1999	Spring 2000	Spring 2001**	Spring 2002**	Winter 1999	Winter 2000	Winter 2001**	Winter 2002**
Spotted Towhee	41	133	145	85				
Stellar's Jay	9		1		1			
Swainson's Thrush		1						
Townsend's Solitaire		2			9	6	11	1
Turkey Vulture	1	1		2				
Vesper Sparrow		2		2				
Vesper Sparrow		2	11	4				
Violet-Green Swallow	23	58	55	67				
Virginia Warbler				1				
Warbling Vireo		1		2				
Western Bluebird	18	6	8	19	32	26	9	
Western Kingbird	2							
Western Meadowlark	32	35	101	13			1	
Western Scrub Jay	64	35	42	32	15	13	21	3
Western Tanager	1	10	22	1				
Western Wood-Pewee	4	4	14	15				
White Throated Swift		1	2	2				
White-Breasted Nuthatch	24	5	10	6	12	4	2	
Wild Turkey	1	6			2			
Willow Flycatcher				1				
Yellow Warbler			1	1				

Notes: * = Estimate of huge flock.
** = Numbers reflect addition of 3 new survey routes.

Table O-2. Summary of Breeding Bird Survey Data Collected in the New Mexico Region

Species*	Percent Change in Long-Term Population Trend from 1966 through 2000	Average Number of Birds Counted per Survey Route
Loggerhead Shrike	-5.73	3.61
Sage Sparrow	-3.40	1.96
Sage Thrasher	-4.14	0.67
Brewer's Sparrow	0.33	2.63
Cassin's Kingbird	1.26	5.04
Bendire's Thrasher	-10.08	0.72
Pinyon Jay	-2.57	15.79
Gray Vireo	-29.16	0.04
Say's Phoebe	-1.63	3.44
Scaled Quail	1.15	5.37

Note: * = The table above lists some of the key (non-T&E) avian species being monitored in the Farmington Field Office area. It is not intended to be an inclusive list of all species occurring the area. Individuals desiring more BBS data should consult the U.S. Fish & Wildlife Service web page at: http://www.mbr-pwrc.usgs.gov/bbs/bbs.html.

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Appendix P
Public Comments on the Draft RMP/EIS and Responses

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Introduction

The Notice of Availability for the Draft RMP/EIS was printed in the *Federal Register* on June 28, 2002, which began the 90-day public review period. The documents were distributed by mail and upon request at the FFO. To facilitate the submission of public comments, four public hearings, documented by court reporters, were held from August 26 through August 29, 2002, in Farmington, Crownpoint, and Cuba, New Mexico, and in Durango, Colorado.

During the public comment period, which ended September 26, 2002, the BLM received a combination of original letters and form letters, in addition to the comments made at the public hearings. All comments were reviewed. If the comments were determined to be relevant to the analysis or, in some cases, if a response would clarify concerns expressed, they were categorized and entered into a database in preparation for the development of responses. When more than one person made similar comments, a summarized comment was developed and a response was prepared in answer to the summarized comment. Responses were reviewed and edited several times before they were considered complete. The summarized comments and responses are included in this appendix, grouped by category. The names and organizations of the commenters are listed under each response.

The BLM received a total of 174 written and 46 oral comments from 196 individuals. From these comment documents, either oral or written, there were over 1,500 comments evaluated for content for which responses were developed. In addition to the documents analyzed for content, there were over 12,000 form letters from at least 3 different organizations that were submitted to the FFO by e-mail, facsimile, or mail. If original comments added to a form letter were determined to be substantive, they were counted as a comment document and responses were developed. Each form letter was reviewed, and any substantive comments were analyzed and responded to once. For this reason, an individual who sent a form letter will not be listed under comments and responses in this section. However, the comment has been analyzed and responses have been developed. The FFO RMP Project Manager has maintained a file with all comments received.

Comments that resulted in changes to this Proposed RMP/Final EIS have been noted in the responses.

Category: Affected Environment

Comment:

As it is currently written, the existing situation is not adequately defined or examined, and as a result, existing needs are not addressed in any of the alternatives. To assume that the existing situation is stable on watersheds, erosion, and damages, and develop alternatives based on that assumption when in fact the situation is deteriorating, will continue to damage the surface resources significantly.

Caren Cowan, NM Cattle Growers Association

Response:

The description of the affected environment in Chapter 3 provides an overall characterization of existing conditions to the level of detail required for this land use plan level document, using existing available data, as a basis for comparison with future actions. As described in many sections and evidenced by the impacts described under the No Action alternative, it was not assumed that the current situation is stable. Many impacts were identified that demonstrate impacts to watersheds, increases in erosion rates, and possible damages to resources. It was assumed that mitigation measures, described in the PRMP/Final EIS, would continue to be applied to minimize impacts, as they were designed to do.

Comment:

The RMP shows livestock grazing as the only impact on riparian areas. What monitoring has been done to prove this theory? What monitoring has been done to show the impacts of wildlife grazing, oil and gas activity, recreational use, and weather patterns? The survey data is only represented from 1994. Is it possible that these so-called riparian areas are not in PFC because they never were riparian areas? The Largo Canyon is listed on an ephemeral stream, and then later called a riparian area.

Jennifer Truby, Truby Ranch

Response:

The description of riparian areas and their conditions is summarized from BLM documents published in 2000 cited in the text, which addressed the monitoring and condition of riparian areas in much more detail and were based on surveys conducted in 1994 and 1998. The riparian areas listed all meet the criteria for riparian areas described on Page 3-35 of the DRMP/EIS. Livestock grazing was discussed in those 2000 documents and the management to improve riparian areas described in the DRMP/EIS is derived from the analysis in those documents. Livestock grazing was not identified as the only impact, but controlling grazing has been identified in the Riparian Habitat Management Plan as a tool for helping to improve riparian areas. This Management Plan was assumed to be in effect for the purpose of this DRMP/EIS.

Comment:

Chaco Culture NHP is not delineated on Maps 2-1 through 2-11 (within the back pockets of the EIS) or in some maps within the certain chapters of the EIS.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

Chaco Culture NHP has been added to Map 2-11 in the PRMP/FEIS. It was already included on Map 1-2.

Comment:

County roads are inconsistently labeled and shown on the maps. For example, see Page 3 -59 vs. Page 2 -228 map.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

The differences in the maps cited are a function of scale. Where the maps show a smaller area, more roads are included to locate the reader. In maps showing a larger area, fewer roads are included to simplify the map. However, in both maps the roads that are labeled use the same labels on each map.

Category: Air Quality

Comment:

The RMP/EIS states, "An emission inventory is not available for the planning area within McKinley, Rio Arriba, San Juan, and Sandoval Counties . . . Therefore, emissions from San Juan County are used as a surrogate for the entire planning area." The first sentence implies that no inventory exists for San Juan County. The second sentence implies that the San Juan County inventory was used to set baseline emissions for the entire study area. This apparent conflict should be addressed, including an explanation of how the San Juan County emission inventory was used in the air quality analysis.

Deborah Seligman, NM Oil and Gas Association
Bruce Policky, BP America Production Company

Response:

The text of the PRMP/FEIS has been revised to correct this apparent conflict.

Comment:

It appears the near field air modeling analysis placed a compressor at every potential location within the study area at one time. That assumption is not logistically or operationally possible and results in predicted air pollutant concentrations substantially greater than would actually occur.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The modeling analysis did not place a compressor at every potential location within the study area at one time. The methods used in the modeling analysis are described in the Air Quality Modeling Analysis Technical Report. See in particular the description of “Proposed Action Sources” on Page 3 of the report.

Comment:

The RMP/EIS should identify important assumptions regarding the near field modeling analysis such as stack downwash and terrain to reflect the conservative nature of the analysis. The modeling should also include sensitivity analyses to ensure that compliance with air quality standards is not jeopardized by adjacent source groups.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

Complete details of the modeling assessment methods and assumptions are provided in the Air Quality Modeling Analysis Technical Report.

Comment:

Page 4-61: The RMP/EIS states: "The central compressors only contribute 2 percent of the total NO_2 impacts for either annual or 24-hour averaging periods. Despite being larger emission sources, the central compressor units have stack characteristics that produce a much higher plume rise compared to the well compressors." This finding needs to be confirmed by examining stack parameters, receptor grids, and distance between the source and the maximum predicted receptor. We believe it unlikely that the central compressors would only contribute 0.7 $\mu g/m^3$ to the predicted 33 $\mu g/m^3$ NO_2 24-hour maximum impact.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The modeling analysis indicated that at times the impact from the central compressors could be as high as 12 $\mu g/m^3$. However, for the maximum impact cases of concentration contributed by “all” sources, the majority of the impact was due to the wellhead compressors.

Comment:

The RMP/EIS should include an explanation of the emission factor used to model formaldehyde emissions. The RMP/EIS should also state that EPA is required to promulgate a Maximum Achievable Control Technology (MACT) for this source group, which may result in further reduction in emissions by the time compressor engines are installed.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The formaldehyde emission rate for wellhead compressors used in the modeling was the average formaldehyde rate from test data for the following compressors: Caterpillar G3304 (95 Hp) – 0.0053 g/sec Caterpillar G3306 (125 Hp) – 0.0070 g/sec Ajax DPC115 (115 Hp) – 0.0065 g/sec Ajax DPC115 LE (115 Hp) – 0.0065 g/sec Arrow VRG220 (45 Hp) – 0.0025 g/sec Arrow VRG330 (68 Hp) – 0.0038 g/sec.

Comment:

The DEIS notes that ambient NOx levels may exceed the standards in local areas. While the projected NOx levels are unrealistically low, due to analysis errors, at least it displays an awareness of NOx.

Mark Pearson, San Juan Citizens Alliance

Response:

The comment is noted.

Comment:

The Draft RMP/EIS does not adequately analyze all of the effects on air quality for each of the alternatives, including the No Action Alternative. Other probable adverse impacts, such as impacts on ozone concentrations and on the PSD increments, visibility, and other air quality related values in nearby Class I areas, are not analyzed at all in the draft RMP/EIS.

Mark Pearson, San Juan Citizens Alliance
Vicki Stamper, William and Flora Hewlett Foundation

Response:

Corrections and additions have been made to this PRMP/FEIS document. All of the impact areas mentioned in this comment have been addressed for each alternative in this FEIS.

Comment:

The air quality modeling for the ambient air quality standards does not justify use of monitoring data to determine current impacts from existing sources.

Mark Pearson, San Juan Citizens Alliance

Response:

Use of ambient air quality monitoring data to represent the background concentration from other existing sources is common practice in air quality modeling impact analysis.

Comment:

The air quality modeling analysis failed to use five years of meteorological data as required by EPA regulations.

Mark Pearson, San Juan Citizens Alliance
Vicki Stamper, William and Flora Hewlett Foundation

Response:

Five years of meteorological data are not required. One year of data may be used if the data is deemed representative of the conditions at the project site. In this case analysis is being done at a land use plan level because actual well site locations are not yet known.

Comment:

The air quality modeling analysis does not cover a large enough area to encompass all significant air quality impacts.
Mark Pearson, San Juan Citizens Alliance

Response:

The air quality model analysis includes a module representative of well locations in a high-density four square mile area. The area modeled is sufficient to provide reasonable estimates of the maximum impacts that may be expected at any location throughout the entire planning area.

Comment:

The Draft RMP/EIS fails to include an air quality modeling analysis for Alternatives A, C, or D.
Mark Pearson, San Juan Citizens Alliance

Response:

The modeling analysis was performed for Alternative B because Alternative B would allow the most new wells and would produce the greatest impacts. Impacts for Alternatives A, C, and D are qualitatively compared to Alternative B based on quantity of emissions and number of wells.

Comment:

The problem with large gas development is the change of air quality. I note that Farmington is 5,300 feet and Durango is 6,500 feet. It seems logical that we will receive what Farmington emits, with no way to avoid or clean up the "dirty" air. Certainly, we were aware of this in the Missionary Ridge fire, when it topped the ridge, and ash could be seen on cars and houses.
Robert and Bonnie Lawrence

Response:

No response required for this observation.

Comment:

We would like to use the public land behind our house for hiking, jogging and biking, however, we do not feel safe going back into this area due to the existing oil/gas development. Signs warn of the presence of dangerous H_2S gas at some of the wells. We are afraid of possible exposure to this gas especially to our 2-year old son or myself being pregnant. We were disturbed to discover a gas leak on one of the oil roads near our house about a year ago which was under such pressure it caused a hole in the overlying sand.
Alicia Malone

Response:

No response required for this observation.

Comment:

In the present situation, there are at times problems with dust, foul emissions, and noise, and with the La Plata coal mine adding its dust and emissions to the situation, and the power plants blowing heavy emissions beginning at sundown, the days here are not of good quality, not to mention the mercury problem.
Bryan Doherty

Response:

La Plata mine is nearing the end of its production phase. The last coal tonnage removal is projected to be in December 2002, at which time the mine will be in a reclamation phase.

Comment:

Page 3-48, second column, first full paragraph. It is recommended that this paragraph be revised for better clarity.
Bruce Policky, BP America Production Company

Response:

The paragraph is correct as written.

Comment:

Page 3-49, first column, first paragraph: The Draft RMP states that "Ozone precursors are mainly VOCs and NOx." Ozone precursors in terms of ambient air quality are VOCs and NO_2.

Bruce Policky, BP America Production Company

Response:

The statement is correct as written on Page 3-49. NOx includes various forms of nitrogen oxides, including NO_2.

Comment:

Pages 3-49 to 3-50, beginning with last paragraph on Page 3-49: This sentence reads "Inert pollutant concentrations tend to be greatest during periods of light wind and surface based temperature inversions." This statement should be changed to include stable atmospheric conditions.

Bruce Policky, BP America Production Company

Response:

The suggested change has been made in the PRMP/FEIS.

Comment:

Page 3-53, Table 3-15 Summary of 1999 Annual Emissions by Source Category for San Juan County. It is recommended that SOx emissions should be changed to SO_2. SOx missions are almost totally SO_2 and SOx is not a regulated pollutant.

Bruce Policky, BP America Production Company

Response:

The emission inventory data is reported in terms of SOx, not SO_2.

Comment:

Page 4-15, second paragraph, under Air Quality: the first sentence of the paragraph reads: "to determine whether the proposed emissions contribute to an exceedance of an ambient air quality standard." It is recommended that the sentence be changed to read: "to determine whether the proposed emissions contribute to a predicted exceedance of an ambient air quality standard."

Bruce Policky, BP America Production Company

Response:

The suggested change has been made in the PRMP/FEIS.

Comment:

Page 4-60, second column, first full paragraph; the sentence reads: "As shown in Table 4-17, the maximum predicted concentrations would not cause a violation of national or state ambient air quality standards." It is suggested a change to read "As shown in Table 4-17, the Alternative B development case does not result in predicted exceedances of national or state ambient air quality standards."

Bruce Policky, BP America Production Company

Response:

The suggested change has been made in the PRMP/FEIS.

Comment:

Something must be done to cut emissions from the two power plants we have BEFORE there are any plans for new pollutants in our area.

Ruth Battaglia

Response:

The two power plants in San Juan County are existing, permitted sources. Emissions from these sources are included as part of the existing background conditions that were considered in the analysis of impacts from this project.

Comment:

Increment consumption is not limited to PSD sources. All sources constructed after the baseline was established consume increment. Even though these sources do not require PSD review, it is the responsibility of NMED to ensure that cumulative impact of all increment consuming sources does not exceed the NO_2 increment. While BLM is not charged with conducting a detailed increment analysis, this finding will be addressed by the NMED during its permitting review.

Bruce Policky, BP America Production Company

Response:

Agreed. The text of the PRMP/FEIS has been revised to indicate that all sources constructed after the PSD baseline date was established consume increment.

Comment:

Page 4-64 through Page 4-65: these two pages contain a list of mitigation measures. These mitigation measures should be considerations only and not be mandated. At the bottom of Page 4-64, the following sentence should be inserted: "Under specific conditions and economic viability the oil and gas operators and transporters may consider these or other mitigations measures that may be appropriate and effective on a case by case basis in order to reduce fugitive dust."

Bruce Policky, BP America Production Company

Response:

These mitigation measures are not mandated. They are measures that should be considered at the time of permitting for inclusion in the permit as conditions of approval. Selection of individual measures at the time of permitting would depend on site-specific conditions. Additional text has been added to the PRMP/FEIS to clarify this.

Comment:

Page 4-65, second column, first full paragraph; a suggestion is made to require emissions from future wellhead compressors to be less than 10 gm/bhp/hr. While this would reduce emissions, smaller compressors are typically not subject to notification or permitting and thus enforcing this requirement would not be practical.

Bruce Policky, BP America Production Company

Response:

BLM could adopt a policy for future well site development that requires the suggested emission rate limitation.

Comment:

There is no analysis of the effects oil and gas development will have on the Weminuche Wilderness Class I Area. The EIS acknowledges there will be significant impacts to the Mesa Verde National Park Class I Area. In this light, it is critical to have some disclosure of the potential impacts to the nearby Weminuche Wilderness on the San Juan National Forest.

Rick Brazell, San Juan National Forest

Response:

The PRMP/FEIS contains additional modeling analysis to determine project impacts in the Mesa Verde National Park and the San Pedro Parks Wilderness Area. Based on these results a discussion of potential impacts in other Class I areas has also been added.

Comment:

The alternative having the highest potential impact to air quality (Alt. B), was the only alternative analyzed in detail. This alternative was shown to have large air quality impacts to Class I Areas that exceed levels allowed by the Clean Air Act. It is not possible to assess the potential impacts of any other alternative that may have lower, more acceptable impacts, since modeling did not occur and impacts were not disclosed. It is critical to have visibility impacts to Class I Areas, including the Weminuche Wilderness, disclosed for each alternative.

Rick Brazell, San Juan National Forest

Response:

Emissions have been calculated in this PRMP/FEIS for each alternative. In general, impacts for each alternative are determined from Alternative B impacts in direct proportion to the amount of emissions. However, potential ground-level concentrations are influenced by the emissions source module. An alternative that would support the same type of high-density source module as used to model Alternative B would potentially produce the same high level of impact. The text of the FEIS qualitatively discusses these impact similarities and differences.

Comment:

On Page 3-48 of the EIS, BLM states that volatile organic compounds, nitrogen oxides, nitrogen dioxide, carbon monoxide, and particulate matter less than 10 microns in diameter are pollutants of concern. EPA identifies each of these pollutants as criteria or precursors for criteria pollutants. The EIS goes on to identify all pollutants except ozone and its precursors as "inert." Inert is defined as displaying no chemical activity. Section 108 of the Clean Air Act states that “For the purpose of establishing national primary and secondary ambient air quality standards, the Administrator shall within 30 days after the enactment of the Clean Air Amendments of 1970 publish, and shall from time to time thereafter revise, a list which includes each air pollutant (A) emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare…” The pollutants identified in the EIS fall into this category. Calling them “inert” seems to be misleading and inappropriate.

Christopher Hockett, San Juan National Forest

Response:

The distinction of a pollutant being inert is made only to identify that these types of pollutants generally do not disperse long distances downwind. The fact that these pollutants are inert does not mean that they are not pollutants of concern.

Comment:

DMR would like BLM to identify an emissions scenario that demonstrates compliance with local air quality and visibility standards.

Gary Derck, Durango Mountain Resort

Response:

The BLM will cooperate and assist NMAQB in establishing more monitoring stations and will apply additional mitigation measures if the monitoring data indicates high concentrations approaching the standards.

Comment:

Finally, the BLM should include projected emissions from DMR in the reasonably foreseeable emissions inventory, if it has not done so already. Please contact DMR to obtain a copy of the emissions inventory.

Gary Derck, Durango Mountain Resort

Response:

The contribution of existing sources to the background air quality conditions is included as part of the air quality monitoring data in Table 3-14.

Comment:

The analysis fails to deal with publicly and readily accessible and more recent data from the NM Air Quality Bureau and US Environmental Protection Agency. The document ignores temporal trends.

Vicki Stamper, William and Flora Hewlett Foundation
B. Brooks Taylor

Response:

Available ambient air quality data from the six most representative NMAQB and USEPA monitoring sites were presented in Table 3-14 for the years 1994-2000. USEPA 1999 emission inventory data for San Juan County are presented in Table 3-15. A discussion of the trend of increasing ozone levels in the project region has been added to the text of the EIS in Chapter 4. Data from the Bloomfield station were selected as the extreme-case (highest) NOx background concentration for modeling purposes.

Comment:

The BLM should not allow a project that will emit 72,000 tons of additional NOx into the air every year.

Treciafaye (Tweeti) Blancett
Jan Garton
Alicia Malone
Sherry Lynn McLaughlin
Ed Stevens
Susan Wible

Response:

Table 4-16 indicates that after netting out the emissions from plugged and abandoned wells total NOx emissions in year 20 would be 62,160 tons of NOx. This value is for year 20 only and does not represent emissions that would occur every year. Further, this value is extremely conservative in that it (1) assumes that all wells put in place from year 1 through year 20 still operate at maximum output levels, (2) is based on the maximum buildout development of 13,266 new wells that applies to Alternative B only, (3) assumes the use of compressors with unmitigated high NOx emission factors of 13.2 grams per horsepower-hour, and (4) assumes no technological improvement in engine efficiency and no emission reductions over the entire 20-year period. In addition, these emissions would occur from sources that would be spread over a large area of approximately 2,000,000 acres.

Comment:

There is an over-emphasis on emissions and permitted sources in the air quality analysis. The sort of emission or permitting focus used in the Draft EIS is now widely recognized to inadequately characterize dynamic air pollutant and metrological factors. Simple two-dimensional air dispersion modeling is dated and insufficient, and will not meet Federal standards.

B. Brooks Taylor
Forest Guardians
Robert Lawrence, Environmental Protection Agency

Response:

Most of this comment is unclear and would need to be clarified before a complete response could be generated. Two-dimensional air dispersion modeling has been for a long time, and still remains, one of the primary techniques recommended by the EPA to assess air quality impacts.

Comment:

Dismissal of calculated violations of NAAQS (National Ambient Air Quality Standards): In two instances in which probable violations of national air standards will occur and are predicted in the draft document, the BLM proposes a postponement of analysis of sources until the date of permitting; this is tantamount to a procrastination of decision time and an absolution of decision responsibilities.

Heidi Rhoderick
B. Brooks Taylor

Response:

It is not unusual for a land use plan level document to point out potential future problem areas that will need resolution when site-specific details are known.

Comment:

The RMP needs to mention the contribution of the proposed development to CO2 levels and greenhouse gas concerns.

Susan Franzheim
Wano Urbonas, San Juan Basin Health Department

Response:

Methods to determine the effects of the significance of greenhouse gas emissions (GGE) from individual projects to climate change do not exist and this issue is beyond the scope of this NEPA process. However, it is acknowledged that burning of fossil fuels developed through the RMP will produce GGE.

Comment:

I would like to see the BLM address transient air pollution sources, specifically OHVs, jet skis, and the kind of motors used in boats that are exploding in use on the Farmington field office territory. I would suspect that these transient sources have a huge impact on air quality.

J.D. Barnett
Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

The mobile nature of these sources would not contribute to an exceedance of an AAQS. However, BLM acknowledges that they would be a contributing source. They tend to be seasonal and sporadic.

Comment:

The RMP is flawed and lacks any information on air pollution as it relates to compressors.

Charlene Anderson
Treciafaye (Tweeti) Blancett

Response:

Compressor emissions have been calculated, as fully described in the Air Quality Modeling Analysis Technical Report and summarized in Tables 4-5 and 4-16.

Comment:

Page 3-50: Table 3-13 should be expanded to include the 8-hour Ozone National Ambient Air Quality Standard.

Sherry Lynn McLaughlin
Mark McMillan, Colorado Department of Health and Environment
Deborah Seligman, NM Oil and Gas Association

Response:

In 1997 the EPA intended to replace the existing 1-hour ozone standard of 0.12 ppm with a new 8-hour standard of 0.08 ppm. However, while the new standard has been established, the US Court of Appeals in May 1999 prohibited the EPA from enforcing the new standard. The Court of Appeals ruling was appealed to the US Supreme Court, which made a ruling on February 27, 2001 (Whitman vs. American Trucking Associations, Inc.). The Supreme Court found that the EPA could set NAAQS without regard to implementation costs, but remanded the questions regarding implementation actions for the new ozone standard back to the Court of Appeals for preserved challenges. Under current conditions, the 1-hour ozone standard will continue to apply and implementation actions (control measures) are based on attaining that standard, while the 8-hour standard has been established but is not enforceable.

Comment:

The Draft EIS says that there will be an increase of 1 to 100 cases of cancer from the air pollution of formaldehyde. In addition, BLM proposes to wait until critical levels of formaldehyde have been reached before deciding whether to continue development, and assumes that there are no residents in close proximity to the formaldehyde sources.

M. Theresa Fitzgerald
Roger Polisar, NMED Air Quality Bureau
Janet Rees
B. Brooks Taylor

Response:

The Draft indicates that from 1 in a million to 100 in a million is the generally accepted range of cancer risk from a project, not the increase in cancer cases from formaldehyde. The actual risks from formaldehyde calculated for the maximally-exposed individual (MEI) and the most-likely exposure (MLE) scenario were 3.0 in a million and 0.98 in a million, respectively. There is no foundation for the statement that BLM proposes to wait until critical levels of formaldehyde have been reached before deciding whether to continue development.

Comment:

Pollutants emitted from the central compressors do not have as great a ground-level impact as the pollutants emitted from the wellhead compressors.

M. Theresa Fitzgerald

Response:

The higher stack height and greater exit velocity associated with the central compressor stacks causes the pollutants to be pushed higher into the atmosphere upon release. Because the pollutants then travel further downwind before settling to ground-level, they become more disperse and diluted than pollutants initially emitted closer to the ground.

Comment:

The EPA's modeling protocols were not followed for air quality modeling.

Mark Pearson, San Juan Citizens Alliance

Response:

The modeling protocol used in this document was reviewed by and discussed with the NMAQB prior to use.

Comment:

The PSD increment for nitrogen oxide was used up in 1989.

Mark Pearson, San Juan Citizens Alliance
Vicki Stamper, William and Flora Hewlett Foundation

Response:

The analysis of PSD increment consumption must be performed on a case-by-case basis and is specific to the area where the new source would be located. The allowable increments remaining depend on the level of development that has already occurred in the area. In some areas the increment may have already been totally consumed and no further emissions would be allowed.

Comment:

The project will impact visibility in Class I areas such as national parks and wilderness areas.

Roger Polisar, NMED Air Quality Bureau
Vicki Stamper, William and Flora Hewlett Foundation
B. Brooks Taylor
Wano Urbonas, San Juan Basin Health Department

Response:

Additional analysis to estimate the impact of project emissions in Class I areas has been added to the Air Quality section in Chapter 4 for Alternative B. The DEIS concluded that visibility impacts would be significant.

Comment:

Photochemical modeling should have been performed to estimate ozone impacts.

B. Brooks Taylor

Response:

Photochemical modeling for a large area such as covered by the proposed project is a highly complex, large-scale effort that is well beyond the scope of this project. Photochemical modeling is generally only appropriate and reasonably accurate for well-defined air basins where studies have been performed to determine the characteristics of the various variables that contribute to ozone formation. These studies are planned to be conducted as part of the multi-agency regional group (Early Action Compact) that will work with NMAQB and EPA to monitor ozone and determine the causes of the elevated ozone levels. Additional qualitative analysis on the impact of project emissions on ambient ozone levels has been added to the Air Quality section in Chapter 4 for Alternative B.

Comment:

In the year 2001, the Air Quality Bureau of the New Mexico Environmental Department estimated that for San Juan County the oil and gas industry contributed 56 percent of all VOCs and 25 percent of all NOx in 2001. This is counter to the popular notion that it's only the two large coal-fired power plants that account for almost all regional air pollution in northern New Mexico.

Janet Rees
B. Brooks Taylor

Response:

The comment is consistent with the data shown in Table 3-15. Summing the categories Crude Petroleum and Natural Gas, Natural Gas Liquids, Petroleum Refining, Natural Gas Transmission, and Petroleum Product Storage/Transport provides 54 percent of all VOCs and 19 percent of all NOx in 1999.

Comment:

The impacts that this proposed drilling could have to our air quality is disturbing. The scale of the proposed increase in gas production alone indicates that the BLM does not need to wait for the results from monitoring. Minimizations and mitigations need to be built in upfront. The key concept is to prevent air quality degradation to a Class I area.

Charlene Anderson
Deb Banton, San Juan Basin Health Department
Leslie Barnhart
Michael Black
Fran Brown, Southern Ute Indian Tribe
Michael Carrell
Gedi Cibas, NM Environment Department
Cheryl Eckhardt, National Park Service, Intermountain Region
Carl Evenson
Janine Fitzgerald
Nora Flucke
Mark and Alice Freitag
Forest Guardians
Richard Grossman
David Hamlow
Sandra Hilton
Bill Humphries
Chris and Patty Isensee
Julie Koehler
Gary Markestad, XTO Energy, Inc.
Sherry Lynn McLaughlin
Warren and Shirley McNall
Alex Moore, Southwest Open School
Mark Pearson, San Juan Citizens Alliance
Roger Polisar, NMED Air Quality Bureau
Susan Rarick
Janet Rees
Dave Rich
Root Routledge
Paul and Carolyn Staby
Vicki Stamper, William and Flora Hewlett Foundation
B. Brooks Taylor
George and Mary Thompson
Bill Williams
Debra Van Winegarden
Jeff Wise

Response:

Due to the high background concentrations of ozone currently being recorded at various monitoring stations throughout northern New Mexico, the emissions of ozone precursors from new project-related sources in combination with emissions from other existing and reasonably foreseeable sources could cause the ozone standards to be exceeded. The BLM and AQB are fully aware of the implications of this potentially significant cumulative air quality impact and have therefore agreed to commit the resources necessary to fully understand and mitigate the problem to the maximum extent feasible. A regional Ozone Task Force has been formed and the FFO is participating as a member of the steering committee. The BLM will work cooperatively with AQB monitoring efforts and will support future mitigation activities needed to keep the planning area in compliance with state and federal air quality standards. The AQB in particular, as part of their mandate to not allow nonattainment of the air quality standards, will be doing additional data collection and will be continuously monitoring the ozone degradation situation. Following collection of more data, the AQB will perform region-wide photochemical modeling to more accurately calculate potential ozone impacts. The BLM will pursue funding to assist the state with modeling and monitoring.

Comment:

Ozone is not mentioned in the RMP/EIS as an issue of concern. As BLM is aware, the NMED has already held one public meeting in Farmington area and met with various city officials about its preliminary analysis that ambient air quality levels appear to be approaching the newly implemented federally mandated 8-hour ozone standard. The RMP/EIS should reflect this issue as being recognized and incorporated into the decision-making that the potential "ozone issue" can and is being addressed through a joint industry-government initiative, which will result in further study and action while still allowing for the continued development of oil and gas and other resource uses within the FFO.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Due to the high background concentrations of ozone currently being recorded seasonally, (it does not occur year-round) at various monitoring stations throughout northern New Mexico, the emissions of ozone precursors from new project-related sources in combination with emissions from other existing and reasonably foreseeable sources could cause the ozone standards to be exceeded. The BLM and AQB are fully aware of the implications of this potentially significant cumulative air quality impact and have therefore agreed to commit the resources necessary to fully understand and mitigate the problem to the maximum extent feasible. The AQB in particular will be continuously monitoring the ozone degradation situation, as part of their mandate is to not allow nonattainment of the air quality standards. The BLM will cooperate and assist the NMAQB in establishing more monitoring stations throughout the affected project area.

Comment:

The EIS shows no evidence of coordination with other agencies. Any effort at coordination with partner agencies is lacking in documentation. For example, input from the Forest Service, from the National Parks Service, from the states of New Mexico and Colorado, adjacent counties and tribal areas would have been appropriate. The RMP/EIS shows no awareness of the Western Regional Air Partnership, of which the State of New Mexico is a member, nor its targets for reduction in air pollution. Anecdotal evidence suggests that even significant entities were not copied the Draft RMP/EIS.

Roger Polisar, NMED Air Quality Bureau
Janet Rees
B. Brooks Taylor
Wano Urbonas, San Juan Basin Health Department

Response:

Much of the air quality analysis (including discussions of methods and modeling protocol) was coordinated with the AQB. On October 10, 2002, a task force steering committee was formed out of citizen concern about elevated ozone levels in the Farmington area, which could affect public health. The steering committee will work with the Environmental Department and the Department of Health to study and address the high levels of ozone found in the Four Corner's area. The long-term goals of the Task Force are to preserve the region's air quality and prevent the area from exceeding national ambient air quality standards in the future. The task force steering committee consists of 18 individuals representing a variety of interests including: environmental groups, local government, industry groups, health groups, air quality agencies, federal agencies, and concerned citizens. The BLM is an active member of the steering committee.

Comment:

EIS didn't consider the heat generated from the compressors. Shutting down all the air traffic after 9/11 affected the temperature of the country. Compressors are a constant heat source that will affect the environment.

Barbara Truby, Truby Ranch

Response:

The phenomenon noticed after 9/11 related to the absence of aircraft vapor trails in the atmosphere. Scientists theorize that the absence of vapor trails in the upper atmosphere allowed more solar radiation to reach the earth's surface and thus contribute to slightly increased ambient temperatures. This phenomenon has no relation to the operation of scattered compressors. The compressors would be neither concentrated enough in one area nor large enough individual sources of heat to significantly affect the local climate or environment.

Comment:

The document did not present an analysis of impacts due to PM_{10} during the operation stage, only the construction phase. Hence, it is unknown whether PM_{10} emissions will cause or contribute to an exceedance of the PM_{10} PSD increments or standards, or what the impact of PM_{10} emissions will be on regional haze and visibility.

Gedi Cibas, NM Environment Department
Gary Derck, Durango Mountain Resort

Response:

PM_{10} is not an issue from operation phase combustion sources. PM_{10} would be an issue only from road dust. However, given the infrequency of vehicles traveling over most of the roads devoted to gas well operations, and the fact that road dust emissions fall off rapidly with distance away from the road, these emissions are not expected to exceed an AAQS or significantly impact visibility.

Comment:

DMR is requesting that the BLM perform additional analyses to quantify the impacts from the emissions from the development of oil and gas resources, in combination with other reasonably foreseeable future emissions. DMR would like to see a PSD increment analysis performed for NO_2, SO_2 and PM_{10}, quantifying impacts specifically in the vicinity of DMR, including Weminuche Wilderness.

Gary Derck, Durango Mountain Resort

Response:

Analyses of the PSD impacts in the Mesa Verde National Park, San Pedro Parks Wilderness, and Weminuche Wilderness have been included in the Air Quality section of Chapter 4. Increment analysis is a responsibility of the state.

Comment:

The air quality analysis has the following methodological deficiency: (c) Limitations of near-field analyses: The near-field analyses utilized in this document are severely limited in addressing pollutant concerns of a regional nature.

Roger Polisar, NMED Air Quality Bureau
Vicki Stamper, William and Flora Hewlett Foundation
B. Brooks Taylor

Response:

Far-field modeling analysis in the form of examining impacts in distant PSD Class I areas has been added to this EIS in Chapter 4.

Comment:

The methodology of the air quality analysis is deficient because it eliminates other regional sources (limitation to San Juan County).

Roger Polisar, NMED Air Quality Bureau

Response:

Page 3-52 of the DEIS explains why only the San Juan County emission inventory was presented. The air quality analysis did not eliminate regional sources, as they are included in the background concentrations from the Bloomfield site used in the near-field modeling analysis.

Comment:

Monitoring stations need to be established as part of this project.

Michael Black
Fran Brown, Southern Ute Indian Tribe
Richard Grossman
John Herr
Mark McMillan, Colorado Department of Health and Environment
Roger Polisar, NMED Air Quality Bureau
Janet Rees
Paul and Carolyn Staby
B. Brooks Taylor
Barbara Truby, Truby Ranch
Wano Urbonas, San Juan Basin Health Department

Response:

The BLM will cooperate and assist the NMAQB in establishing more monitoring stations in the affected project area to track the effect of gas well emissions. The BLM will pursue funding to assist the state with modeling and monitoring.

Comment:

In sufficient amounts, ozone is a health hazard.

Richard Champany
Richard Grossman
Sherry Lynn McLaughlin
Janet Rees
B. Brooks Taylor

Response:

It is true that ozone is a health hazard when above or approaching national standards. Ozone is a pungent, colorless, toxic gas with direct health effects on humans, including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors. It is for these vary reasons that ambient ozone standards have been set. The standards are designed to protect the general population, including the most sensitive members of that population. The Ozone Task Force, an interagency group in the region, will work on identifying the sources of the elevated levels of ozone and developing measures to address this problem.

Comment:

Visible air pollution has increased in San Juan County in recent years.

Michael Black
Gary Derck, Durango Mountain Resort
Julie Koehler
Janet Rees
William Simon, Alpine Environmental Services
Bill Williams

Response:

Except as applies to Class I areas there are no regulations addressing general visibility degradation. New sources must comply with the AAQS and must not exceed allowable PSD increments. The EIS addresses these issues. Determination of potential visibility reduction in areas outside of Class I areas was not within the scope of this document.

Comment:

No mention is made of the possibility of future air quality enhancement, and the benefits that clean air generate-economically and environmentally. The RMP assumes that air quality will get worse, and that efforts should be evaluated to figure out how bad things might get.

Wano Urbonas, San Juan Basin Health Department

Response:

One of the primary intents of environmental documentation, including this EIS, is to first determine the potential significant impacts that may be caused by the project and to then find means to either eliminate or reduce those impacts to a level of insignificance. This EIS fulfills that intent to the extent possible, but concludes that identifiable mitigation measures may not be sufficient to completely reduce the impact to insignificant.

Comment:

The offset from abandoned wells is not quantified

Mark McMillan, Colorado Department of Health and Environment

Response:

Emission reductions due to plugged and abandoned (P&A) wells are quantified in Tables 4-5 and 4-16.

Comment:

Various mechanisms for improving emissions controls on wellhead compressor engines should be investigated.

Charlene Anderson
Fran Brown, Southern Ute Indian Tribe
Sherry Lynn McLaughlin
Mark McMillan, Colorado Department of Health and Environment
Vicki Stamper, William and Flora Hewlett Foundation
Wano Urbonas, San Juan Basin Health Department

Response:

Discussion has been added to the text of Chapter 4 describing additional mitigation measures that can be applied to reduce emissions from compressor engines.

Comment:

What is the effect of ozone on rock art images located in proposed drilling area? Are the rock art images now fading because of ozone?

Dale Anderson

Response:

Air pollution can have a deleterious effect on exposed artwork. However, a determination of the correlation between ozone and the fading of rock art was not part of the scope of this document nor were concerns raised during the public scoping meetings.

Comment:

This RMP needs to better address concerns over ambient air quality. The elevated levels of ground level ozone in the Bloomfield area need to be confronted, not circumvented.

Wano Urbonas, San Juan Basin Health Department

Response:

On October 10, 2002, a task force steering committee was formed out of citizen concern about elevated ozone levels in the Farmington area, which could affect public health. The steering will work with the Environmental Department and the Department of Health to study and address the high levels of ozone found in the Four Corner's area. The long-term goals of the Task Force are to preserve the region's air quality and prevent the area from exceeding national ambient air quality standards in the future. The task force steering committee consists of 18 individuals representing a variety of interests including: environmental groups, local government, industry groups, health groups, air quality agencies, federal agencies, and concerned citizens. The BLM is an active member of the steering committee.

Comment:

The San Juan Basin airshed has been inappropriately cut off by the arbitrary political line separating Colorado and New Mexico (Map 3-1).

Janine Fitzgerald
William Simon, Alpine Environmental Services

Response:

Map 3-1 is not intended to show the outline of the San Juan Basin airshed. The boundary line indicates the jurisdiction area for the Farmington RMP. The air quality analysis considers impacts throughout the regional area in areas such as Mesa Verde National Park, for example.

Comment:

The ROI is arguably the entire San Juan Basin, which includes Mesa Verde National Park, the Weminuche Wilderness, lakes, reservoirs, and additional scenic vistas of Southwest Colorado, not presently considered.

Rick Brazell, San Juan National Forest
Gedi Cibas, NM Environment Department
Gary Derck, Durango Mountain Resort
Mark and Alice Freitag
Kathryn Goldman
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Janet Rees
William Simon, Alpine Environmental Services
B. Brooks Taylor
Wano Urbonas, San Juan Basin Health Department
Bill Williams
John Zent, Burlington Resources – San Juan Division

Response:

Agreed. The Air Quality ROI is not limited by any type of political boundary. The potential impacts caused by project-related emissions in PSD Class I areas such as Mesa Verde National Park, the San Pedro Parks Wilderness and the Weminuche Wilderness have been added to the analysis for Alternative B in Chapter 4 of this EIS.

Comment:

The regional air quality information does not include the more onerous consideration of acid precipitation that can result from the present and future degradation of air quality.

William Simon, Alpine Environmental Services
Vicki Stamper, William and Flora Hewlett Foundation

Response:

At present the problem of acid rain is addressed at the federal level for stationary power sources only (primarily coal, oil, and gas-fired electric utility plants). Title IV of the Clean Air Act established the Acid Rain Program with a goal of reducing annual SO_2 emissions by 10 million tons below 1980 levels and reducing NOx emissions by 2 million tons by the year 2000. Phase I of the program focused on the larger plants, while Phase II, which began in the year 2000, is now focusing on smaller, cleaner plants. The program is being closely monitored to measure its success. There are no plans at present to include other sources in the program.

Comment:

Page 3-50: Table 3-14. These data need to be checked; it appears that the decimal points have been improperly placed for 1998 and 2000.

Fran Brown, Southern Ute Indian Tribe
Christopher Hockett, San Juan National Forest
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The ozone values shown for the Shiprock Substation in years 1998 and 2000 are typographical errors. The correct values are 0.08 ppm and 0.09 ppm, respectively. The values have been corrected in the PRMP/FEIS.

Comment:

The modeling analysis indicates that the annual NO_2 PSD Class II increment will be exceeded.

Fran Brown, Southern Ute Indian Tribe
Michael Lane, Williams Companies, Inc.
Mark Pearson, San Juan Citizens Alliance

Response:

The modeling analysis in the EIS indicates that a reasonable but conservative grouping of project emissions would exceed the Class II increment. It should be realized that the conservative nature of this scenario is such that it may never actually occur. Emissions from the wellhead compressors would produce the overwhelming majority of the impact. Under AQB Regulation 20.2.72 (Construction Permits), proposed stationary sources that emit more than 25 tons per year or 10 pounds per hour of a pollutant would have to demonstrate compliance with the PSD increments, in addition to the ambient air quality standards. However, since the wellhead compressors would fall below these emission thresholds, they would be exempt from PSD increment requirements unless a portion or all of their emissions were combined to represent a permit unit large enough to exceed one of these thresholds. At the time of specific development applications for emissions sources associated with the site-specific modeling that considers local terrain features and other conditions specific to the actual proposed development scenario would be performed. If it were to be determined that the locally available PSD increment would be exceeded, proposed emissions would have to be mitigated before these individual project components would be allowed to proceed. The PRMP/FEIS includes recommended measures that could substantially reduce NOx emissions from proposed wellhead compressors, which could minimize the impact of proposed emissions to PSD NOx increment levels.

Comment:

The RMP should research existing meteorological stations for scientific information. Comments on "generally..." or "rarely..." is not good science. Voids in data need to be addressed by a request for additional air monitoring. Temperature, inversions, wind speed, wind direction, and other met data are extremely important with regards to regional air quality.

Wano Urbonas, San Juan Basin Health Department

Response:

This EIS is a land use plan level document that describes the overall impacts of gas well development over a large regional area. Meteorological conditions of temperature, inversions, wind speed, and wind direction are most important in determining the dispersion of pollutants at the local scale. Nonetheless, descriptions of these conditions appropriate to the regional scale have been included in the document at the beginning of Chapter 3. A search of the Chapter 3 Air Quality section failed to find a single instance of the use of the terms "generally" or "rarely" in reference to meteorological conditions.

Comment:

Chapter 3: The "Affected Environment" section ignores the current condition of local and regional air quality resources. The statement regarding "Region of Influence" (ROI) is very misleading. In many circumstances, ROI is not limited to "a few miles downwind."

Wano Urbonas, San Juan Basin Health Department

Response:

Current air quality background conditions are described by the data from various project-area monitoring stations, as provided in Table 3-14. The full statement that "The ROI for inert pollutants (pollutants other than O3 and its precursors) is generally limited to a few miles downwind from a source." is accurate. Inert pollutants could at times be dispersed more than a few miles downwind under certain conditions of wind speed and atmospheric stability.

Comment:

$PM_{2.5}$ needs additional discussion.

Wano Urbonas, San Juan Basin Health Department

Response:

Additional discussion of $PM_{2.5}$ has been added to the text in Chapter 4 of the EIS.

Comment:

Table 3-14 shows Max Pollutant concentrations by year—this data needs to be accompanied by an additional table showing Average concentrations, by month and by year. This will enable us to scrutinize levels, determine trends, and focus on incremental levels of air pollutants.

Wano Urbonas, San Juan Basin Health Department

Response:

The background pollutant data presented in the EIS are adequate for NEPA purposes, as they relate to comparisons to the New Mexico and National AAQS. Ambient air quality data are available from the AQB and EPA. The commenter can readily obtain these data to perform any desired additional analyses.

Comment:

It is highly recommended that terrain features be part of the near-field modeling analysis for the project area. Utilization of a flat-terrain grid system for this particular project area may misrepresent modeled emission concentrations.

Fran Brown, Southern Ute Indian Tribe
Gedi Cibas, NM Environment Department

Response:

Due to the land use plan level of the project description and the uncertainty of future well placement locations, the effects of terrain were not considered in the DEIS. However, text has been added to Chapter 4 to discuss the potential implications of terrain on the near-field modeling results.

Comment:

Mitigation efforts should also involve odor suppression activities throughout all project development and operation phases.

Fran Brown, Southern Ute Indian Tribe

Response:

There are presently no odor regulations in New Mexico at the state level. Odor problems would typically be addressed on a site-by-site basis at the local/county level.

Comment:

Page 4-61: The RMP/EIS states that an exceedance of the NOx PSD increment could occur under the PA. As with our comments on the 24-hour NOx standard, that there are a number of factors that should be included in the RMP/EIS that demonstrate that NOx emissions and ambient concentrations are being overestimated and that, if necessary, actual emissions and concentrations could be reduced through emission control techniques.

Fran Brown, Southern Ute Indian Tribe
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The DEIS identifies a method to reduce NOx emissions from wellhead compressors. Discussion has also been added to the text of Chapter 4 describing additional mitigation measures that can be applied to reduce emissions from proposed project operations.

Comment:

Most of the compressor sources associated with gas well development are not subject to PSD review.

Gary Derck, Durango Mountain Resort
Wano Urbonas, San Juan Basin Health Department

Response:

Information presented in the DEIS about compressor sources was misleading in that it indicated that compressors would not be subject to PSD review. The text of the FEIS has been revised. In particular, under AQB Rule 20.2.72 NMAC (Construction Permits) new stationary sources that would emit more than 25 tons per year or 10 pounds per hour would be subject to complete air quality review and must demonstrate compliance with both AAQS and PSD increment analysis.

Comment:

The RMP should consider some of the following alternatives: minimize road construction, require construction techniques that minimize traffic-generated dust, consider dust mitigation measures for problem areas, restrict road access/use, develop estimating rationale for the number of road miles driven each year, include a statement: "In areas where blowing dust becomes a significant problem or engenders complaints, the BLM will take steps to mitigate the problem, consider closing or restricting access to roads, and coordinate with the AQB to determine the effectiveness of the steps taken."

Gedi Cibas, NM Environment Department

Response:

Additional discussion of potential PM_{10} impacts due to dust from unpaved roads has been added to the text of the PRMP/FEIS. The alternatives suggested in the comment have been included in this text.

Comment:

Page 3-48 says, "State standards, established by the NMAQB..." This is incorrect. The AQB merely enforces the state standards established by the Environmental Improvement Board (EIB). Page 3-49 says: "The NMAQB also designates areas of the state as either in attainment or nonattainment of the NMAAQS. At the present time, the entire project region attains all national and state ambient air quality standards." AQB does not designate areas. The EPA designates areas as Attainment, Nonattainment, OR "Unclassified," (meaning that data are not available for federal standards). Based on our four monitoring stations in the Farmington area, San Juan County is currently considered in attainment for all national ambient air quality standards, although ozone is approaching the nonattainment threshold. McKinley and Rio Arriba Counties would be "unclassified" because there are presently no monitors in those locations. We are concerned about the extent of the ozone problem and are applying for funding to do temporary monitoring to evaluate the need for permanent stations. Table 3-14 (Page 3-50) contains errors on the second line under ozone. The Shiprock Substation reading should be 0.08 for 1998 and 0.09 for 2000. Page 3-52 states: "An emission inventory is not available for the planning area within McKinley, Rio Arriba, San Juan, and Sandoval Counties." This statement is untrue. We do have emissions inventories for all permitted sources and mobile sources within each county. For more information, you may contact Jim Shively at (505) 955-8068.

Gedi Cibas, NM Environment Department

Response:

The corrections suggested in this comment have been made in the PRMP/FEIS.

Comment:

On Page 13 of the Modeling Analysis Technical Report, there is a discussion of the PSD increment. This discussion seems to assume that only PSD-major sources consume PSD increment. This is not the case in the project area, as the minor source baseline date for NO_2 was established in 1989. All sources in the project area, both major and minor, consume PSD increment. Additionally, the majority of existing sources in the project area consume PSD increment. Within the project area, there are several localized areas where the available PSD Class II increment is nearly exhausted (e.g., the Bloomfield gas corridor). A permit application for a module in one of these areas would be denied, as 20.2.72 NMAC requires that new and modifying sources meet all applicable PSD increments.

Gedi Cibas, NM Environment Department

Response:

The suggested clarifications from this comment have been added to the text of the PRMP/FEIS. Information presented in the DEIS about compressor sources was misleading in that it indicated that compressors would not be subject to PSD review. The text of the PRMP/PRMP/FEIS has been revised. In particular, under AQB Rule 20.2.72 NMAC (Construction Permits) new stationary sources that would emit more than 25 tons per year or 10 pounds per hour would be subject to complete air quality review and must demonstrate compliance with both AAQS and PSD increment analysis.

Comment:

The conclusion from Table 6 on Page 12 is that a single module would cause impacts that exceed the 24-hour NMAAQS for NO_2. It is possible that use of the ozone-limiting approach will bring NO_2 marginally into compliance.

Gedi Cibas, NM Environment Department

Response:

A discussion of the ozone limiting method and its potential influence on the impact conclusions has been added to both the PRMP/ FEIS and the Modeling Analysis Technical Report.

Comment:

It appears that the NMAAQS may have been incorrectly calculated for the project area on Pages 10 and 12. For example, assuming an average elevation in the Farmington area of around 5000 feet, the calculated 24-hour NO_2 NMAAQS should be 158.6 $\mu g/m^3$ instead of 188 $\mu g/m^3$, and the annual NO_2 NMAAQS should be 79.3 $\mu g/m^3$ instead of 94.3 $\mu g/m^3$. The AQB's Dispersion Modeling Guidelines provides the temperature and elevation correction factor for gaseous pollutants.

Gedi Cibas, NM Environment Department

Response:

The PRMP/FEIS and the Modeling Analysis Technical Report have been corrected as noted in this comment.

Comment:

The modeling analysis used a monitored background to represent existing concentrations. The AQB concurs that this may be appropriate for the DEIS analysis due to the very preliminary stage of this project; however, this would not be an acceptable method for a permitting analysis. It should also be recognized that the maximum monitor value may or may not be representative of the maximum NO_2 concentrations in the project area. The monitor is located in an area where there are several large sources of NOx and CO emissions; however, the monitor may not be sited to capture the maximum concentrations from these sources. The sources in this area are on an east-west line, so maximum impacts will likely be directly to the east or west of the sources. The monitor is northwest of this group of sources. The monitor also may not be representative of all allowable (or permitted) emissions in the project area. Minor source air quality permits allow up to two years for commencement of construction from issuance of the permit, and major source permits allow 18 months from issuance for commencement of construction. There are many sources that have been permitted in the project area in the last several years that may not yet be operational. This means that the monitored concentrations may not be representative of all existing allowable emissions in the project area.

Gedi Cibas, NM Environment Department

Response:

The clarifications suggested by this comment have been added to the text of the PRMP/FEIS.

Comment:

There is no mention of other HAPs besides formaldehyde. Since there will be other HAPs emitted, including BTEX, the DEIS should include a listing of these HAPs and the estimated levels of emissions, even if the emissions are so insignificant that a modeling analysis of impacts is not warranted.

Gedi Cibas, NM Environment Department

Response:

The health risk assessment contained in the PRMP/FEIS has been revised to include not only formaldehyde, but also other HAPs that may contribute to health risk as well, such as BTEX and benzene.

Comment:

There is no mention of the cumulative impact of all of the modules; the analysis focus is only on the local impact of a single module. The cumulative impact of the entire project could be significant enough to increase the background concentration, increase ozone concentrations and reduce visibility in the project area. Additionally, the cumulative impact of these sources could cause significant impacts on air quality related values in nearby Class I areas. Given that there exist air quality concerns in the project area, mention of cumulative impact analysis seems appropriate for this EIS. Perhaps a statement like: "A cumulative impact analysis will be required for each future source as part of the air quality permit process." BLM is not required to conduct such an analysis, either now or later, but such a statement would indicate BLM's awareness, and define when such an analysis will be conducted.

Gedi Cibas, NM Environment Department

Response:

Text addressing cumulative impact analysis for future sources has been added to the text of the PRMP/FEIS.

Comment:

Emissions from project-related sources may contribute to the formation of regional haze since both NOx and some VOCs have a role in the formation of secondary aerosol.

Gedi Cibas, NM Environment Department
Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

A Federal regional haze rule currently require improved visibility in Federal Class I areas by the year 2064. A regional haze committee is looking at this rule, and current research has shown that SO_2 is the primary contributor to visibility issues along the Colorado plateau. Hence, SO_2 emission reductions will be the focus of initial visibility improvements, with NOx and VOC emission reductions being a secondary consideration.

Comment:

The current RMP/EIS makes note that "...it is possible that several compressor units located close to elevated terrain could cause an impact situation that would exceed the NO_2 24-hour state standard. Exceedance of any other state or national standard is unlikely." This issue can largely be resolved by increasing stack heights, relocating the compressor to a location without such terrain features, or additional controls so as not to exceed the 24-hour NO_2 state standard.

Gary Markestad, XTO Energy, Inc.
John Zent, Burlington Resources – San Juan Division

Response:

Some of these potential solutions for resolving the potential problem of exceeding the NO_2 24-hour state standard have been added to the text of the PRMP/FEIS.

Comment:

The RMP/EIS has grossly overstated the emissions estimates for the preferred Alternative D. The commenter believes that a more correct assessment of emissions would be the aggregate well count on which well site compression would occur on ½ as predicted in the plan.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

It is not clear how the commenter arrived at the conclusion. Emissions for Alternatives C and D were not explicitly calculated in the DEIS. However, these emission calculations have been added to the PRMP/FEIS. The calculations for Alternatives C and D were performed in the same manner as used to calculate emissions for Alternatives A and B. The assumption is used that well site compression would occur on ½ of the wells.

Comment:

The RMP/EIS leaves out an important comparison of net increase in emissions over current baseline levels. Although the RMP/EIS does mention that the modeling data is added to current air quality data, when comparing to National Ambient Air Quality Standards, it is also important to show the relative increase to those emissions currently existing.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

While the information about emissions growth rate is informative, it really has no bearing on the assessment of impacts. If the ambient background concentration is high and approaching the level of a standard, even a small rate of growth in a relatively short period of time may be enough to push the concentration over the standard and cause a significant impact.

Comment:

The current RMP/EIS makes note of an additional 360,000 hp of central compression and half of the planning wells having well-site compression, with an aggregate compression horsepower approaching 2.3 million horsepower. As a result of applying current emission factors, with no provision for improvements in technology or the use of emissions controls, NO_x and CO impacts of over 60,000 tons/year are predicted under Alternatives B and D. Both the aggregate horsepower number and emissions totals should be corrected. It should be stated that no allowance has been provided for improvements in technology or the use of emissions controls. It is reasonable to project actual emissions and ambient air impacts at far reduced levels by the anticipated use of improved engine technology, increased stack heights, and use of other controls.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The emission calculations only considered wellhead compressors to be needed for ½ of the new wells. The aggregate horsepower and emissions presented for Alternatives A and B are therefore correct as shown in the DEIS. New calculations have been included in the PRMP/FEIS for Alternatives C and D. All calculations are based on existing available technology. Speculation on how technology will improve in the future is not appropriate. However, a statement has been added to the PRMP/FEIS to indicate that emissions may be reduced in the future due to improvements in technology.

Comment:

Page 4-60: The current RMP/EIS states that "...it is possible for several compressor units located close to elevated terrain could cause an impact situation that would exceed the NO_2 24-hour state standard." The 24-hour standard is described in NMED rules as an "objective." NMED air quality permitting requirements preclude issuance of a permit to a new or modified source of air pollutants unless they demonstrate that they will not cause an exceedance of any state or federal ambient air standard.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

Agreed. NMED air quality permitting requirements would preclude issuance of a permit to a new or modified source of air pollutants unless it is demonstrated by modeling that the source would not cause an exceedance of any state or federal ambient air standard.

Comment:

BLM should revise the RMP/EIS to clarify the statements regarding permitting and to note that permitting and other mitigation measures could prevent any exceedance of the 24-hour or other air quality standard.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company

Response:

Agreed. Corrections and additions have been made to the PRMP/FEIS.

Comment:

There is, however, a lack of clarity in the RMP/EIS on the issue of whether the compressor units would require permits. Page 4-60 states that "at the time of permitting" it might be determined that compressor units located close to elevated terrain could cause an exceedance of the 24-hour standard The RMP/EIS at Page 4-58, however, indicates that the majority of NOx emissions that would occur would be from wellhead compressors, "...generally small enough to fall below the NMAQB permitting and Notice of Intent...processes...." NMOGA urges BLM to revise the RMP/EIS to clarify the statements regarding permitting, and to note that permitting and other mitigation measures could prevent any exceedance of the 24-hour or any other air quality standard. If there are sources that are too small to trigger the permitting requirements or in any situation where there is concern regarding an exceedance of the 24-hour standard, the concern can be resolved by increasing stack heights, relocating the compressor to a location without such terrain features, or the addition of air pollutant control techniques.

Deborah Seligman, NM Oil and Gas Association

Response:

Information presented in the DEIS about compressor sources was misleading in that it indicated that compressors would not be subject to PSD review. The text of the FEIS has been revised. In particular, under AQB Rule 20.2.72 NMAC (Construction Permits) new stationary sources that would emit more than 25 tons per year or 10 pounds per hour would be subject to complete air quality review and must demonstrate compliance with both AAQS and PSD increment analysis. Some of these potential solutions for resolving the potential problem of exceeding the NO_2 24-hour state standard have been added to the text of the FEIS. NMED air quality permitting requirements would preclude issuance of a permit to a new or modified source of air pollutants unless it is demonstrated by modeling that the source would not cause an exceedance of any state or federal ambient air standard.

Comment:

Page 4-60: The RMP/EIS states: "...that planning area emissions from gas production potentially would produce significant impacts to visibility to Mesa Verde National Park and San Pedro Parks National Wilderness Class I areas." There is no adequate basis for these conclusions. BLM relied upon the Southern Ute Indian Tribe ("SUIT") DEIS far-field modeling analysis for predicting the impact from the FFO proposed actions, by qualitatively comparing the FFO projected emissions to those for the SUIT analysis and the proximity of the two areas to the Mesa Verde and San Pedro Class I areas. Commenters question the reliability of this type of assessment of visibility impact to either Mesa Verde or San Pedro Class I areas. The FFO sources are to the southeast and substantially further away from Mesa Verde Class I area than the SUIT sources. Only actual modeling of the impacts based upon the FFO estimated emissions can provide a reliable estimate of potential visibility impacts. Potential visibility impacts could be mitigated by the PSD air quality permitting system, which requires analysis of visibility impacts in Class I areas, the federal regional haze rules, which require improved visibility in Federal Class I areas by 2064, and additional control techniques to reduce emissions of sulfur and nitrogen oxides.

Cheryl Eckhardt, National Park Service, Intermountain Region
Deborah Seligman, NM Oil and Gas Association

Response:

Agreed. The Air Quality ROI is not limited by any type of political boundary. The potential impacts caused by project-related emissions in PSD Class I areas such as Mesa Verde National Park and the San Pedro Wilderness Area have been added to the analysis for Alternative B in Chapter 4 of this EIS. Information presented in the DEIS about compressor sources was misleading in that it indicated that compressors would not be subject to PSD review. The text of the FEIS has been revised. In particular, under AQB Rule 20.2.72 NMAC (Construction Permits) new stationary sources that would emit more than 25 tons per year or 10 pounds per hour would be subject to complete air quality review and must demonstrate compliance with both AAQS and PSD increment analysis. Some of these potential solutions for resolving the potential problem of exceeding the NO_2 24-hour state standard have been added to the text of the FEIS.

Comment:

Page 4-61: The BLM should explain the rationale for the assumptions made in Notes 3 and 4 in Table 4-17. These assumptions are pivotal in demonstrating compliance with the 24-hour NO_2 standard.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The assumptions are in accordance with recommendations contained in AQB's "Guideline on Air Quality Models'" (1998). See the section on "NO_2 Modeling Methodology."

Comment:

The Draft RMP/EIS also fails to include appropriate measures to mitigate the adverse air quality effects that the Draft RMP/EIS admits will likely occur.

Mark Pearson, San Juan Citizens Alliance

Response:

The DEIS identifies a method to reduce NO_x emissions from wellhead compressors. Discussion has also been added to the text of Chapter 4 describing additional mitigation measures that can be applied to reduce emissions from proposed project operations.

Comment:

The Draft RMP/EIS fails to include a Cumulative Analysis of PSD Increment Consumption.

Mark Pearson, San Juan Citizens Alliance

Response:

Agreed. The Air Quality ROI is not limited by any type of political boundary. The potential impacts caused by project-related emissions in PSD Class I areas such as Mesa Verde National Park and the San Pedro Wilderness Area have been added to the analysis for Alternative B in Chapter 4 of this EIS.

Comment:

The Air Quality Modeling Analysis failed to include Topographic Data.
Mark Pearson, San Juan Citizens Alliance
Vicki Stamper, William and Flora Hewlett Foundation

Response:

Due to the land use plan level of the project description and the uncertainty of future well placement locations, the effects of terrain were not considered in the DEIS. However, text has been added to Chapter 4 to discuss the potential implications of terrain on the near-field modeling results.

Comment:

The Draft RMP/EIS fails to adequately assess the air quality impacts on nearby Class I air quality areas.
Mark Pearson, San Juan Citizens Alliance

Response:

Agreed. The Air Quality ROI is not limited by any type of political boundary. The potential impacts caused by project-related emissions in PSD Class I areas such as Mesa Verde National Park and the San Pedro Wilderness Area have been added to the analysis for Alternative B in Chapter 4 of this EIS.

Comment:

The Draft RMP/EIS does not describe adequate mitigation measures that could be taken to avoid air quality violations.
Mark Pearson, San Juan Citizens Alliance
Vicki Stamper, William and Flora Hewlett Foundation

Response:

The DEIS identifies a method to reduce NOx emissions from wellhead compressors. Discussion has also been added to the text of Chapter 4 describing additional mitigation measures that can be applied to reduce emissions from proposed project operations.

Comment:

The most glaring omission by BLM on cumulative impacts and connected actions concerns air quality. The DEIS fails to even mention the existence of the Northern San Juan Basin Coalbed Methane EIS that is presently in preparation by the San Juan Field Office in Durango, and which considers the impacts from up to 300 new CBM wells near Bayfield, Colorado. There is passing reference to the Southern Ute Indian Tribe FEIS that analyzes the impacts from over 700 new CBM wells. But nowhere does the DEIS attempt to describe and analyze the cumulative impacts from all of the CBM and conventional gas well drilling proposed for the entire San Juan Basin, including wells literally within sight of the FFO analysis area.
Mark Pearson, San Juan Citizens Alliance

Response:

Cumulative impacts of existing sources are addressed through a consideration of the existing ambient background concentration when determining the impact of project-related emissions.

Comment:

As you can see, asthma is a public health problem among Navajo children. Further, it is understood that as NOx increase in the air, the number of asthma cases is exacerbated.
Richard Champany

Response:

It is true that ozone is a health hazard when above or approaching national standards. Ozone is a pungent, colorless, toxic gas with direct health effects on humans, including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors. It is for these vary reasons that ambient ozone standards have been set. The standards are designed to protect the general population, including the most sensitive members of that population. The Ozone Task Force that was formed will work on addressing this problem.

Comment:

Air pollution from the thousands of new compressors would destroy air quality, including the sweeping views of Mesa Verde National Park.

Glenna Barnes
Kevin Drees
Jane McGarry

Response:

The Air Quality ROI is not limited by any type of political boundary. The potential impacts caused by project-related emissions in PSD Class I areas such as Mesa Verde National Park and the San Pedro Wilderness Area have been added to the analysis for Alternative B in Chapter 4 of this EIS.

Comment:

BLM must consider the cumulative impacts of all of the wells planned throughout the entire San Juan Basin. Air quality monitoring must be done to enable forward planning instead of waiting for nonattainment forces action.

Cheryl Eckhardt, National Park Service, Intermountain Region
Mark Pearson, San Juan Citizens Alliance
Ed Stevens
Travis Stills, Citizens Oil & Gas Support

Response:

Potential cumulative damages have been quantified to the extent possible with available information in Chapter 4. A combination of methods, including modeling based on assumptions in the document, GIS, and other recent documents were used. The new wells, miles of new roads, and acres of surface disturbance projected for each watershed if all federal and non-federal minerals were to be developed were quantified. Other impacts were mainly qualitative due to the land use plan nature of the document, the large size of the planning area, and the availability of data. The different timeframes and schedules for the Southern Ute Indian EIS and the Northern San Juan Basin EIS, made it impractical to develop a basin-wide EIS. The issues involved with Oil and Gas development in the Colorado portion of the San Juan Basin, particularly those dealing with surface management, are sufficiently different from those in the FFO, that a basin-wide EIS would not provide the focused analysis needed to understand oil and gas development options. The Farmington RMP is a land use plan revision that encompasses and analyzes issues broader than just oil and gas development. Information from the Southern Ute Indian EIS was considered in the development of the Farmington DRMP/EIS and incorporated as appropriate. The Carson National Forest EIS is just getting underway and will incorporate the information from this document. BLM is participating in the NMAQB and Four Corners Regional Ozone Task Force effort to develop plans to monitor and mitigate air quality problems.

Comment:

Any viable alternative that seriously addresses air quality will document, with contemporary modeling techniques, that there will be no significant deterioration in NAAQS, particularly ozone and visibility, over the history of the projected gas development.

Roger Polisar, NMED Air Quality Bureau
Vicki Stamper, William and Flora Hewlett Foundation

Response:

Additional qualitative analysis on the impact of project emissions on ambient ozone levels has been added to the Air Quality section in Chapter 4 for Alternative B. Additional analysis to estimate the impact of project emissions in Class I areas has been added to the Air Quality section in Chapter 4 for Alternative B. The DEIS concluded that visibility impacts would be significant.

Comment:

Description and analysis of both pollutants [$PM_{2.5}$ and 8-hour ozone] is recommended for inclusion in the Final EIS. This will allow for a more comprehensive study of air pollution within the project area.

Fran Brown, Southern Ute Indian Tribe

Response:

Additional discussion of $PM_{2.5}$ has been added to the text in Chapter 4 of the EIS. Under current conditions, the 1-hour ozone standard will continue to apply and implementation actions (control measures) are based on attaining that standard, while the 8-hour standard has been established but is not enforceable.

Comment:

This RMP does not address what can be done to modernize and improve current levels of emissions from current extraction, and hence does not provide the public with adequate information to consider as viable alternatives.

Forest Guardians
Gary Markestad, XTO Energy, Inc.

Response:

The DEIS identifies a method to reduce NOx emissions from wellhead compressors. Discussion has also been added to the text of Chapter 4 describing additional mitigation measures that can be applied to reduce emissions from proposed project operations.

Comment:

The RMP does not address the 8-hour ozone or $PM_{2.5}$ requirements. They should be added to Table 3-14 (Page 3-50), with an additional year (2001) column to show the monitored levels. Section 4, Air Quality, should discuss the potential impact of the proposed development on these two pollutants.

Gedi Cibas, NM Environment Department

Response:

In 1997 the EPA intended to replace the existing 1-hour ozone standard of 0.12 ppm with a new 8-hour standard of 0.08 ppm. However, while the new standard has been established, the US Court of Appeals in May 1999 prohibited the EPA from enforcing the new standard. The Court of Appeals ruling was appealed to the US Supreme Court, which made a ruling on February 27, 2001 (Whitman vs. American Trucking Associations, Inc.). The Supreme Court found that the EPA could set NAAQS without regard to implementation costs, but remanded the questions regarding implementation actions for the new ozone standard back to the Court of Appeals for preserved challenges. Under current conditions, the 1-hour ozone standard will continue to apply and implementation actions (control measures) are based on attaining that standard, while the 8-hour standard has been established but is not enforceable. Additional discussion of $PM_{2.5}$ has been added to the text.

Comment:

As evidenced by the potential increase in emissions identified in the EIS, this project could have a significant impact on air quality related values (AQRV) over a substantial geographic area. However, no such refined modeling was performed nor was a PSD increment or other AQRV analysis included in the EIS. The minimal modeling and reliance on the Southern Ute Oil and Gas EIS for the purpose of inferring impacts on the surrounding area is inappropriate. Also, this approach seems lack sufficient environmental analysis to determine if BLM's action on this project will meet it affirmative obligation under section 176 of the Clean Air Act. It appears that a full air quality impact analysis, including PSD increment and AQRV impacts should be performed for this project.

Christopher Hockett, San Juan National Forest

Response:

This land use plan level EIS attempts to assess the potential impacts associated with development of a theoretical maximum number of wells that would be located in as yet unidentified specific locations throughout a large planning area. The assessment relies on development of a theoretical high-density well source module to determine potential maximum PSD and visibility impacts. Because actual well development would occur in a similar fashion, i.e., as isolated or small groupings of wells located and developed over the entire planning area throughout the 20-year planning period, this approach is deemed appropriate. At the time each well or well group is proposed for development, the site-specific conditions for that well or well group would be analyzed as part of the permitting process to determine the project-specific impacts. Development of these projects would not be allowed to proceed unless it could be demonstrated that significant impact to the AAQS, PSD increments, or Class I AQRV would not occur.

Comment:

The amount of horsepower in existing compressor stations was underestimated. This is important for determining whether air quality standards have not been exceeded.

Bruce Policky, BP America Production Company

Response:

The estimates of existing and projected compression are based on the information in the RFDS, which was derived from industry input and data from the FFO. The RFDS is consistently used as a basis for information throughout the document because it is the best data available. While this was used as baseline information, the determination of whether air quality standards have been exceeded under existing conditions is based on the monitoring data from the 2 air quality monitoring stations operated by NMED/AQB in Farmington and Bloomfield.

Comment:

The air quality analysis provided in the Draft RMP/EIS does not comport with currently accepted standards for such analyses as discussed below, which would likely show even greater impacts on air quality. Further, the Draft RMP/EIS does not adequately analyze all of the effects on air quality for each of the alternatives, including the No Action Alternative. Other probable adverse impacts, such as impacts on ozone concentrations and on the PSD increments, visibility and other air quality related values in nearby Class I areas, are not analyzed at all in the Draft RMP/EIS.

Vicki Stamper, William and Flora Hewlett Foundation

Response:

The modeling protocol used in this document was reviewed by and discussed with the NMAQB prior to use. Some additional modeling and description of the impacts related to terrain, ozone concentrations, and PSD increments was completed in response to comments from the EPA and the NMAQB on the DRMP/EIS, and the methodology was approved by these agencies in advance. The revised results are described in Chapter 4 of the PRMP/FEIS.

Comment:

The Draft RMP/EIS and Air Quality Technical Report do not justify use of the Bloomfield monitoring data to represent maximum concentrations in the San Juan basin.

Vicki Stamper, William and Flora Hewlett Foundation

Response:

The BLM will cooperate and assist the NMAQB in establishing more monitoring stations throughout the affected project area to track the effect of gas well emissions because NMAQB has established the need for better monitoring data. The DRMP/EIS explains the use of the Bloomfield monitoring station as the best current source of data for this analysis because it does capture emissions from the power plants and other industry in the area including oil and gas wells.

Comment:

Should air quality decrease or increase, monitoring will be continued, but no mitigation is identified or discussed within the FFO EIS.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

On October 10, 2002, a task force steering committee was formed out of citizen concern about elevated ozone levels and other air quality concerns in the Farmington area, which could affect public health. The steering committee will work with the Environment Department and the Department of Health to study concerns in the Four Corner's area and to develop appropriate mitigation measures after they better understand the pollutant sources. The long-term goals of the Task Force are to preserve the region's air quality and prevent the area from exceeding national ambient air quality standards in the future. The task force steering committee consists of 18 individuals representing a variety of interests including: environmental groups, local government, industry groups, health groups, air quality agencies, federal agencies, and concerned citizens. The BLM is an active member of the steering committee.

Category: Alternatives Considered

Comment:

One assumption listed in the Draft RMP/EIS is that half of the new gas wells would require the use of a 250,000 British Thermal Unit (BTU) per hour gas fired separator unit. (Page 4-57 of the Draft RMP/EIS.) However, the air quality modeling analyses did not include emissions from any separator units and thus underestimated emissions.

Vicki Stamper, William and Flora Hewlett Foundation

Response:

Review of Table 4-16 in the FEIS shows that separator units would produce about 0.5 percent of the total NOx emissions from Alternative B. These sources would have an hourly NOx emission rate of about 0.03 pounds per hour. Since these sources are small compared to the wellhead or central compressors, inclusion of their emissions in the modeling analyses would increase the maximum impacts estimated for the emissions module by an imperceptible amount.

Category: Alternatives Development

Comment:

An alternative should be analyzed that lengthens the time for extraction of mineral resources and/or minimizes impacts to surface resources.

Charlene Anderson
Leslie Barnhart
Judith Brey
Jim Fitzgerald
Bill Humphries
Rena Kaplowitz
Julie Koehler
Steve Krest
Alexandra Lamb
Mark Pearson, San Juan Citizens Alliance
S.D. Schemnitz, Southwest Consolidated Sportsmen
William Simon, Alpine Environmental Services
Travis Stills, Citizens Oil & Gas Support
Christie Vliss
Susan Wible

Response:

A variation of this alternative is described more fully in Chapter 2 under the subtitle, Alternatives Eliminated from Detailed Analysis. BLM does not believe it has the right to so drastically limit access to existing lease rights without compensating the lessees, which would result in huge payouts by the BLM.

Comment:

Why don't you use new technology that minimizes the creation of roads, concrete pads, and the resulting erosion and other impacts to surface resources?

Charlene Anderson
Ann Borden
Mary Jo Gage
Mark Pearson, San Juan Citizens Alliance

Response:

Alternative D, the Preferred Alternative, encourages the use of such new technology as directional drilling, coil tube drilling, remote sensing and telemetry, and piping of produced water. All of these, in addition to mitigation measures and regulatory changes will serve to minimize impacts to surface resources.

Comment:

The range of alternatives is too narrow. Prepare a new EIS that considers an alternative that minimizes impacts to surface resources such as wildlife habitat, soil, water, and cultural resources, and does a better job of multiple use management.

Charlene Anderson
Leslie Barnhart
Michael Carrell
D'Arline Crawford
Bill Day
Jennie Dear
Liesl Dees
Cheryl Eckhardt, National Park Service, Intermountain Region
Jim Fitzgerald
W. James Judge
Paul and Jackie Levine
Mike Matz
Eileen Music
Evert Oldham
Mark Pearson, San Juan Citizens Alliance
Jeff Regan
Dave Rich
Michael Robinson, NM Wilderness Alliance
Ed Stevens
B. Brooks Taylor
Wano Urbonas, San Juan Basin Health Department

Response:

While the alternatives do not vary greatly in the quantity of gas produced, they vary in the number of well locations and resulting surface disturbance that would occur. The alternatives vary in the amount of surface resources to be protected mainly by varying the acreage and location of SDAs and the management prescriptions within these areas. The SDAs were delineated to protect especially significant resources. It is assumed, as described under Continuing Management Guidance in Chapter 2, that current BLM policy and guidelines would provide the basis for minimizing negative effects on surface resources while allowing oil and gas development to occur. A section on mitigation measures and monitoring efforts has been added to the PRMP/FEIS to more clearly explain the measures to be employed to minimize negative impacts to surface resources. Description of an alternative that was considered has been added to Chapter 2 under the subtitle, Alternatives Eliminated from Detailed Analysis.

Comment:

Consider greater reliance on renewal resources and energy conservation.

Dave Albright
Ruth Battaglia
B.J. Boucher
Gayle Brown
Kevin Drees
Julie Koehler
Joanna Lewis
Laura Pilewski
Ron Schroeder
Jean Smith
Heather Snow
Kathleen Stachowski

Response:

This is beyond the scope of this document and outside the authority of the BLM. The BLM seeks to manage within its existing authorities and policies, which require that valid existing mineral leases be developed responsibly.

Comment:

Why include Alternative B that does not assume BMPs and BAT if it represents a scenario that is not likely to occur? This goes against the NEPA requirement to evaluate reasonable alternatives.

Barry Rhea, Rhea Environmental Consulting

Response:

The information in the RFDS was used to develop the oil and gas development scenarios under each alternative. Use of Alternative B allowed the analysis to demonstrate the potential impacts if more new well pads and roads were installed than assumed using the relatively conservative estimate in the RFDS. The projected well numbers are projected based on good data, but it is possible that they underestimated the new wellbores over the planning period, and should not be used as the upper limit for analysis. Inclusion of this alternative provides the BLM managers with information on the impacts to resources if less than the projected level of dual completions and commingling would occur.

Comment:

The No Action Alternative fails to address actual resource management. It deals with numbers of wells, and underestimations of acreages of surface disturbance, rather than providing the public with some information regarding the capabilities of the FFO to effectively manage under alternative development scenarios.

Barry Rhea, Rhea Environmental Consulting

Response:

All alternatives, including the No Action Alternative, address the same issues and propose variations in resource management. While policies and management guidance are presented, the staff and other capabilities of the BLM that are needed to manage the land under each scenario or alternative would be subject to annual budgets. The proposals for land use management in this RMP can be used to develop and justify budget requests.

Comment:

According to CEQ NEPA Regulations (40 CFR 1502.14), the Draft RMP/EIS should include a reasonable alternative not within the lead agency's jurisdiction (i.e., denial of oil and gas lease development). No such alternative is presented. Ample case law exists where the courts upheld this requirement.

Barry Rhea, Rhea Environmental Consulting

Response:

BLM believes that denial of oil and gas lease development is not a reasonable alternative. Blanket denial of development on existing leases could lead to large claims against the government for denial of valid existing rights or violation of correlative rights. The PRMP/FEIS is not used to approve individual wells. Environmental impacts of projects to develop existing leases are analyzed on case-by-case basis during the APD process. If an EA indicates significant environmental impacts, the BLM will conduct further analysis examining other alternatives including project denial.

Comment:

The Draft RMP/EIS, or at least the No Action Alternative, should acknowledge the management deficiencies of the past, and present alternatives that are realistic for BLM implementation. As such, please provide some evidence of the FFO track record, so that the public can in fact use the No Action Alternative as a baseline for comparison. For example, several FFO EAs I have read included a "Noxious Weed Management Plan." These plans stated that a baseline of invasive species infestations must be established; that infestations must be controlled/eradicated by the applicant; and that annual inventory follow-up surveys and Monitoring Reports must be filed. Of the hundreds (thousands?) of FONSIs/CE issued for oil and gas developments over the last 10 years, how many invasive species Monitoring Reports are on file at the FFO? Without some assurances that the FFO is in fact implementing these programs and COA, the impact determinations throughout this Draft RMP/EIS are meaningless.

Barry Rhea, Rhea Environmental Consulting

Response:

While policies and management guidance are presented, the staff and other capabilities of the BLM that are needed to manage the land under each scenario or alternative would be subject to annual budgets. The proposals for land use management in this RMP can be used to develop and justify budget requests. Monitoring of weed infestations is an ongoing effort of the FFO. Maps have recently been created that locate and identify noxious weeds. This RMP/EIS has taken the first step in identifying the amount of surface disturbance anticipated, to assist in future planning and management.

Comment:

The No Action Alternative is not presented as a serious alternative. It is just used as a baseline.

Jim Fitzgerald
Julie Koehler
Janet Rees

Response:

The No Action Alternative assumes that the current type of management extends over the planning period. It is used as a baseline and is required by NEPA.

Comment:

If BLM is violating the Clean Air Act and Endangered Species Act under some alternatives, the No Action Alternative should be selected.

Jim Fitzgerald

Response:

The BLM is not violating the CAA and the ESA. The analysis presented under some alternatives identifies the potential for air quality impacts so the BLM can be aware and plan to monitor and mitigate so air quality damage does not occur. It has never been stated that the BLM is violating the ESA.

Comment:

A new alternative that documents no significant deterioration in air quality should be analyzed using contemporary modeling techniques.

Mark Pearson, San Juan Citizens Alliance
B. Brooks Taylor

Response:

The air quality modeling used for the DRMP/EIS is a contemporary method that was first approved by the NMED/AQB, the agency with primacy over air quality enforcement in New Mexico. The impacts presented that were based on the analysis revealed the most severe situation that could occur without mitigation measures. Through monitoring and cooperation with AQB and EPA to develop mitigation measures, no significant deterioration is anticipated. Additional information on monitoring and mitigation plans has been added to the PRMP/FEIS.

Comment:

None of the alternatives described offers any substantive protection of appropriate recreational use of the land in question or any real protection of the environment or wildlife.

Camille Matthews, Three Rivers Back Country

Response:

The Preferred Alternative includes additional areas to be designated for motorized and non-motorized vehicles, as well as many more ACECs to protect cultural resources that are visited by tourists. Some existing designated recreation areas, such as Simon and Thomas Canyons, build on the limits on oil and gas development by adding NSO areas or timing limitations to benefit recreational uses and wildlife. While OHV access is limited to maintained roads over the majority of the FFO in the Preferred Alternative, additional trails that have been requested by the public have been added and plans are stated for opening up additional areas for OHVs once it has been determined that they would not cause damage to surface resources. There is a significant increase over the No Action Alternative in the acreage under timing limitations to benefit wildlife under the Preferred Alternative.

Comment:

While oil and gas is an important economic resource, a plan that focuses on this resource alone is flawed and short-sighted.
Camille Matthews, Three Rivers Back Country

Response:

The plan focuses only on oil and gas development outside the FFO area, but within the FFO area, 4 other issues, identified during scoping, have been addressed in the alternatives. It may appear that the focus is on mineral development because that is the greatest single source of impacts to surface resources.

Comment:

The Preferred Alternative does not adequately protect recreation from noise impacts.
Carolyn Dunmire, Ecos Consulting

Response:

Implementation of the Noise Policy would result in lower noise levels from compressors in the most commonly used recreation areas, including the cultural sites that are established as interpretive sites for tourists. BLM believes that this approach provides a balance between increased costs to industry for noise mitigation and lower noise levels at the commonly used recreation areas. BLM acknowledges that this does not lower noise levels at all dispersed recreation areas.

Comment:

Since tourism generates similar expenditures to the oil and gas industry in the Planning Area and is expected to grow, recreation resources should be protected, not degraded.
Carolyn Dunmire, Ecos Consulting
Mark Pearson, San Juan Citizens Alliance

Response:

Alternative D strives to protect recreation resources while still enabling access to valid existing lease rights for oil and gas development. It includes additional areas to be designated for motorized and non-motorized vehicles, as well as many new ACECs to protect cultural resources visited by tourists that are designated as Noise Sensitive Areas. Some existing designated recreation areas, such as Simon and Thomas Canyons, build on the limits to oil and gas development by adding NSO areas or timing limitations to benefit recreational uses and wildlife.

Comment:

The alternatives all carry forward the management decision to allow federal mineral extraction on 99 percent of the FFO, resulting in favoring one land use, oil and gas development, over all others.
Michael Robinson, NM Wilderness Alliance

Response:

The BLM seeks to manage within its existing authorities and policies, which require that valid existing mineral leases be developed responsibly. The description of an alternative that was considered has been added to Chapter 2 under the subtitle, "Alternatives Eliminated from Detailed Analysis." This will explain more fully the reasons for not fully developing an alternative without a major mineral development component. It should be noted that while 99 percent of the high development area is leased and would be developed, the high development area comprises approximately 60 percent of the FFO.

Comment:

Incorporating specific provisions by reference might add a desired level of detail to the RMP/EIS.

Gary Markestad, XTO Energy, Inc.

Response:

A new section that summarizes the mitigation measures has been added to the PRMP/FEIS, which should add some detail. Many of the existing policies and guidelines are referenced in Chapter 2 under Continuing Management Guidance. Specific BMPs that are currently used or would be proposed would be designed to meet the needs of each site and situation, so would not be appropriate to discuss in detail in this land use planning level document. If industry representatives have recommendations on appropriate BMPs to be utilized, they can discuss with the FFO staff at any time.

Comment:

Try to keep mineral leases under federal surface ownership instead of splitting mineral and surface management through land transfers, as stated in the Preferred Alternative.

Gary Markestad, XTO Energy, Inc.

Response:

Any decisions that would increase the amount of split estate would be made only if land transfers would benefit federal land and resource management. The stated acreage increases listed under Alternative D are the maximum possible if all SDAs were consolidated under federal management and all land exchanges proposed were to be carried out.

Comment:

Leave the timing limitations as they are under Alternative A.

Gary Markestad, XTO Energy, Inc.

Response:

In the interest of improving wildlife habitat management while allowing oil and gas development, BLM still proposes to enact the timing limitations as described under Alternative D. The timing limitations under current management (No Action Alternative) have been found to be inadequate due to impacts to wildlife.

Comment:

Page 2-236. The final sentence in column one should be amended to recognize the need for emergency repairs to prevent economic loss to be authorized by inserting the words "and economic loss" following "environmental contamination." In addition, the BLM should ensure that the definition of "emergency repairs" is consistent with Rule 3100.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

Comment is noted. The intention here is to state that exceptions to the timing limitations are possible, with the main focus on safety and environmental health.

Comment:

Need to allow for a more flexible approach to the existing requirement of advance notice and approval prior to installation of a new compressor.

Deborah Seligman, NM Oil and Gas Association

Response:

The Noise Policy under the Preferred Alternative has been developed with input from industry and other federal agencies. BLM would provide operators with maps of the areas affected by NSA requirements and would have up to 60 days after the source is set in the field to meet the standard. Allowances are stated for exceptions on a case-by-case basis.

Comment:

The alternatives do not comply with FLPMA because they do not consider all reasonable alternatives and do not prevent unnecessary degradation of public lands. The alternatives would all result in permanent impairment of soil and wasting of water through surface impacts.

Mark Pearson, San Juan Citizens Alliance

Response:

The BLM seeks to manage within its existing authorities and policies, which require that valid existing mineral leases be developed responsibly. The alternatives vary in the amount of surface resources to be protected mainly by varying the acreage and location of SDAs and the management prescriptions within these areas. The SDAs were delineated to protect especially significant resources. While it is true that construction of roads and well pads would permanently alter soils, this is not the same as saying that the soils would be permanently impaired. The mitigation measures required by policy and law would minimize the impacts to surface resources. It is assumed, as described under Continuing Management Guidance in Chapter 2, that current BLM policy and guidelines would provide the basis for minimizing negative effects on surface resources while allowing oil and gas development to occur. A section on mitigation measures and monitoring efforts has been added to the PRMP/FEIS to more clearly explain the measures to be employed to minimize negative impacts to surface resources.

Comment:

Please revise the Preferred Alternative to establish a net gain in public lands over the planning period.

J.D. Barnett

Response:

Public lands would be acquired to improve the BLM's ability to manage within specially designated areas, when available from other landowners. There is no stated goal of increasing the total public land acreage and no identified need was brought up during public scoping.

Comment:

Develop a proposal that minimizes the negative impacts on the desert ecosystems, wildlife, air quality, and the experience of nature. Take some pride in protecting cultural resources.

Jan Garton

Response:

The existing and proposed SDAs do reflect the BLM goal of protecting and preserving cultural resources. Project-specific procedures are utilized to negate or otherwise minimize impacts to cultural resources.

Comment:

The RMP/EIS leaves some gaps in information . . . there are two areas in which BLM may wish to expand its discussions. The first area is situations in which the RMP/EIS refers to existing regulatory programs, such as in its discussions of the use of BMPs to control erosion and preserve water quality. In these instances, incorporating specific provisions by reference might add a desired level of detail to the RMP/EIS. The other situation involves situations where BLM will have to develop guidelines, practices, and procedures in the future to guide specific, practical decisions that will implement this blueprint. An example here would be any new BMPs that BLM might create over time to implement the requirements of the RMP/EIS.

Gary Markestad, XTO Energy, Inc.

Response:

A new section that summarizes the mitigation measures has been added to the PRMP/FEIS, which should add some detail. Many of the existing policies and guidelines are referenced in Chapter 2 under Continuing Management Guidance. Specific BMPs that are currently used or would be proposed would be designed to meet the needs of each site and situation, so would not be appropriate to discuss in detail in this land use planning level document. If industry representatives have recommendations on appropriate BMPs to be utilized, they can discuss with the FFO staff at any time.

Comment:

Despite a detailed compilation of many sources of significant adverse impacts on wildlife habitat, the DEIS team nevertheless proposes an alternative that would implement such impacts. The decision to select Alternative D given the evidence for significant impacts on the wildlife resource seems inconsistent with the analysis conducted by the DEIS team.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The BLM is tasked with multiple resource management, which includes the extraction of mineral resources. Further monitoring and mitigation measures are planned to be employed to identify and reduce the adverse impacts to wildlife habitat. BLM believes that denial of oil and gas lease development is not a reasonable alternative, for reasons described in an alternative added to Chapter 2 under the subtitle, "Alternatives Eliminated from Detailed Analysis." The selection of Alternative D as the Preferred Alternative does not, however, mean that this alternative will be selected in its entirety in the Record of Decision for the RMP.

Comment:

If the analyses in the DEIS suggest that environmental costs are too high, or appropriate mitigation actions are unavailable, the correct decision is to propose a No Action Alternative. Importantly, Alternative A is NOT a No Action Alternative. This Alternative allows substantial oil and gas development and the potential for extensive environmental degradation from almost unconstrained OHV use.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The No Action Alternative assumes that the current type of management extends over the planning period. The No Action alternative is not supposed to be static or to assume that no actions occur, but assumes that current management decisions and actions would continue throughout the planning period. Under its policies and regulations, the BLM cannot choose to stop all land management including mineral extraction.

Comment:

Political pressure for oil and gas development does not set aside legal requirements for the protection of environmental resources. For example, the BLM is required to manage species in such a manner as to ensure actions that they authorize, fund, or carry out do not contribute to the need to list any species under the Endangered Species Act. However, proposed oil and gas development under all alternatives has a high potential to adversely impact the mountain plover, and the potential recovery of the Colorado pikeminnow and Razorback sucker.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

According to the informal Section 7 consultation conducted by the BLM under the ESA, the USFWS has determined that there would be no adverse effect to threatened and endangered species as a result of the proposed action. In response to the submitted Biological Assessment, the USFWS issued a concurrence letter to the FFO on October 2, 2002, that documents the lack of anticipated adverse impacts to T&E species under BLM management.

Comment:

A map showing all well locations over time (50 years) should be included to discuss and illustrate the cumulative impacts over time.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

This would be useful but the information is not available.

Category: Alternatives Support

Comment:

IPAMS supports Alternative D, the BLM's Preferred Alternative, and agrees with the New Mexico Oil and Gas Association's comments, which are incorporated herein by reference. The proposed actions in Alternative D will provide many benefits for the State of New Mexico and the nation, while allowing energy to be developed in a way that protects the environment. It is required that BLM consider the socio-economic benefits of producing these resources. Alternative D will contribute to the economy of New Mexico through job creation and the generation of much needed revenue to local, state, and federal governments. Alternative D also complies with the President's directive to increase domestic energy supply to help meet America's demand for energy, thereby lessening our dependence on foreign supplies. Alternative D will provide natural gas to meet the increasing demand for energy. By 2020, the Energy Information Administration expects the United States will need 50 percent more natural gas and ⅓ more oil to meet this escalating demand. Allowing production of 11,125 Bscf or 99.7 percent of the estimated resource value, as proposed in Alternative D, will help ensure that our nation's energy needs are met. The number of people currently employed by the oil and gas industry in the Farmington area is more than 11,000 people, and this number would be expected to increase during the next 20 years. In 2000, the amount received in total revenues by the local, state, and federal governments through mineral royalties, severance, *ad valorem*, and sales and use taxes from the planning area was approximately $3.6 billion. With the increased oil and natural gas production provided for under Alternative D, this could be far greater than the $72 billion that we estimate would be generated under Alternative A, the No Action Alternative.

Grant Melvin, Independent Petroleum Association of Mountain States

Response:

Comment is noted.

Comment:

It is difficult to determine how the Preferred Alternative was chosen over other alternatives evaluated, including the No Action Alternative.

Robert Lawrence, Environmental Protection Agency

Response:

The Preferred Alternative was selected in the DRMP as the alternative that best met the purpose, need, and objectives of the plan.

Comment:

Alternative C, the Conservation Alternative, comes close to addressing the stature and proper management of the Dinetah's world-class cultural resources, and I would support that alternative as a good beginning.

Isaac Eastvold

Response:

Comment is noted.

Comment:

The Preferred Alternative D would not, in my opinion, adequately protect the all-important character of the Dinetah's rock art and other cultural sites, although it might protect the actual physical resource in some cases.

Isaac Eastvold

Response:

This EIS is a land use plan level document and is not project-specific. Dinetah sites would be protected or mitigated as part of normal Section 106 compliance procedures.

Category: Biological Assessment

Comment:

The addition of the Laguna Seca SMA is not warranted.
Thomas Mullins, Synergy Operating, LLC

Response:

BLM cooperates with the USFWS in the preservation of species as outlined in the Endangered Species Act. BLM proposes to establish the Laguna Seca Area of Environmental Concern (ACEC) to protect and manage the USFWS designated Mexican spotted owl critical habitat in accordance with the 1995 Recovery Plan for the Mexican Spotted Owl (MSO). The Biological Assessment (BA) analyses the impacts of the RMP Revision to the MSO and the management actions planned. The USFWS has concurred with MSO management as outlined in the BA.

Comment:

BLM should limit size of Laguna Seca ACEC to the number of acres of critical habitat designated by the USFWS on FFO land (2,617 acres) not the proposed size under the proposed action (7,460 acres of federal lands).
Thomas Mullins, Synergy Operating, LLC

Response:

BLM cooperates with the USFWS in the preservation of species as outlined in the Endangered Species Act. BLM proposes to establish the Laguna Seca Area of Environmental Concern (ACEC) to protect and manage the USFWS designated Mexican spotted owl critical habitat in accordance with the 1995 Recovery Plan for the Mexican Spotted Owl (MSO). The Biological Assessment (BA) analyses the impacts of the RMP Revision to the MSO and the management actions planned. The USFWS has concurred with MSO management and affects determination as outlined in the BA.

Comment:

BLM should perform a financial analysis for each species listed in BLM 2002b.
Thomas Mullins, Synergy Operating, LLC

Response:

Such an analysis is beyond the scope of a biological assessment.

Comment:

BLM should provide documentation of actual AFO and FFO specific studies carried out since last RMP-EIS.
Thomas Mullins, Synergy Operating, LLC

Response:

Studies carried out by AFO and FFO regarding listed species since the last RMP-EIS are summarized in the biological assessment.

Comment:

BLM should provide a cost estimate associated with Mexican spotted owl surveys funded by industry.
Thomas Mullins, Synergy Operating, LLC

Response:

To date, all surveys have been funded by BLM. BLM surveyed the entire designated critical habitat in 2001 and 2002.

Comment:

BLM should confirm that the USFWS gave proper notice for its proposed rule.
Thomas Mullins, Synergy Operating, LLC

Response:

It is suggested that parties interested in the USFWS notification procedures contact the USFWS. BLM is bound by this designated critical habitat.

Comment:

No Mexican spotted owls were ever identified during surveys on FFO and AFO land.

Thomas Mullins, Synergy Operating, LLC

Response:

A Mexican spotted owl was detected in the designated critical habitat during the summer of 2002 – see BA Pages 5-53 to 5-55.

Comment:

Mexican spotted owl survey requirement is unnecessary even though it may be currently required. BLM should clearly define the allowable access timeframe and all acreage associated with all proposed SMAs.

Thomas Mullins, Synergy Operating, LLC

Response:

Management for the MSO is outlined in the BA. The USFWS has concurred with proposed management for the MSO and the effects determination as stated within the BA.

Comment:

Confirm that the great-horned owl occurs in the proposed Laguna Seca SMA and provide information on other raptors within the proposed SMA.

Thomas Mullins, Synergy Operating, LLC

Response:

The great-horned owl is known to occur in the proposed Laguna Seca SMA. Great-horned owls also occur throughout the range of the MSO. The presence of great-horned owls in suitable MSO habitat does not preclude MSO from occupying suitable habitat.

Comment:

If the Mexican spotted owl should be identified on the Laguna Seca SMA, oil and gas operators should be given unrestricted access so the effects of oil and gas development activities on this species can be determined.

Thomas Mullins, Synergy Operating, LLC

Response:

BLM cooperates with the USFWS in the preservation of species as outlined in the Endangered Species Act. BLM proposes to establish the Laguna Seca Area of Environmental Concern (ACEC) to protect and manage the USFWS designated Mexican spotted owl critical habitat in accordance with the 1995 Recovery Plan for the Mexican Spotted Owl (MSO). The Biological Assessment (BA) analyses the impacts of the RMP Revision to the MSO and the management actions planned. The USFWS has concurred with MSO management and effects determination as outlined in the BA.

Comment:

Text changes to the Mountain plover section of the biological assessment are suggested. In addition, items listed under "Effects Determination" in the biological assessment are objected to including: 1) There may be significant oil and gas development in the potential mountain plover habitat instead of "little" development as stated in the biological assessment. 2) There is no benefit to designating large geographic areas as potential mountain plover habitat. 3) Preconstruction surveys should not be required. 4) Constraints on an operator if the mountain plover is found in a proposed project area should be specified. 5) There is no information indicating that permanent noise sources would adversely impact migratory bird populations. 6) Proposed mountain plover SMA should not be implemented.

Thomas Mullins, Synergy Operating, LLC

Response:

The BLM has reviewed the suggested text changes for the mountain plover section of the biological assessment and has decided to leave the write-up as is. BLM acknowledges possible oil and gas development may be higher than estimated. The designation of "critical habitat" is the responsibility of the USFWS and not BLM. The BA states that 12,000 acres of potential mountain plover habitat of FFO land in widely dispersed segments. The BA also states that BLM does not propose a mountain plover SMA or ACEC. The BA does outline the process proposed project approval and the application of stipulations on the 12,000 acres of designated potential mountain plover habitat consisting of construction outside of the breeding season (April 1 to July 31), or a survey to insure there are no impacts to plovers such as the destruction of an active nest. Noise mitigation may be required on permanent facilities on a site-specific basis if negative impacts to nesting plovers can be determined. Mountain plover management and effects determinations are analyzed in the BA and the USFWS has concurred with BLM effects determinations.

Comment:

BLM should provide the volume and type of technical evidence data that would be necessary to request the USFWS to remove the critical habitat from the Laguna Seca area.

Thomas Mullins, Synergy Operating, LLC

Response:

It is suggested that parties interested in the USFWS notification procedures contact the USFWS. BLM is bound by this designated critical habitat.

Category: Biological Resources Technical Report

Comment:

SAIC (2002b) should deal directly with surface disturbance impacts on wildlife through out the planning area.
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) was prepared principally, to provide background information for sensitive species and the potential negative impacts to wildlife habitat as a result of oil and gas development and operations.

Comment:

SAIC (2002b) should go through peer review.
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) has gone through a review process that is typical for a NEPA related document, which includes internal review and then public review. The BLM believes this review process is adequate for SAIC (2002b).

Comment:

SAIC (2002b) does not quantify or summarize other impacts such as predation and/or grazing.
Thomas Mullins, Synergy Operating, LLC

Response:

The impacts of grazing on biological resources on the planning area were addressed in separate NEPA documents as summarized in the biological assessment. Predation does have an impact on wildlife but the purpose of the EIS is to assess the impacts of proposed human activities on biological resources.

Comment:

Quantifying possible habitat loss from new development should not be so lightly disregarded in SAIC (2002b).
Thomas Mullins, Synergy Operating, LLC

Response:

Both direct and functional habitat loss are analyzed for all alternatives in the EIS and SAIC (2002b).

Comment:

BLM should provide a plan to validate and verify the relevance of the many "commonly" accepted standards for the RMP-EIS area.
Thomas Mullins, Synergy Operating, LLC

Response:

Comment unclear.

Comment:

BLM should review effectiveness of reseeding of oil and gas locations and pipeline ROWs and present this in SAIC (2002b).
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) was prepared principally, to provide background information for sensitive species and the potential negative impacts to wildlife habitat as a result of oil and gas development and operations.

Comment:

Road kill analysis should be included in SAIC (2002b).
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) was prepared principally, to provide background information for sensitive species and the potential negative impacts to wildlife habitat as a result of oil and gas development and operations.

Comment:

BLM should include three criteria that are commonly used in discussions regarding big game habitat.
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) was prepared principally, to provide background information for sensitive species and the potential negative impacts to wildlife habitat as a result of oil and gas development and operations.

Comment:

Travel on roads in the planning area including the SMAs has not been adequately addressed.
Thomas Mullins, Synergy Operating, LLC

Response:

The BLM agrees that travel on roads in the planning area has not been adequately addressed. There is very little planning area specific information on this topic. As mitigation, the BLM is proposing a study to investigate various factors related to habitat fragmentation on the planning area. This proposed study will include an analysis of vehicle traffic density, timing, and other factors on planning area roads in the high oil and gas development areas. This study would be funded, at least in part, by entities such as the oil and gas companies that construct new roads in the planning area.

Comment:

SAIC 2002b should address the use of gates on the planning area.
Thomas Mullins, Synergy Operating, LLC

Response:

SAIC (2002b) was prepared principally, to provide background information for sensitive species and the potential negative impacts to wildlife habitat as a result of oil and gas development and operations.

Comment:

Conclusions regarding adverse habitat effects within 660 feet and 1,320 feet of roads within the planning area should be disregarded at present.
Thomas Mullins, Synergy Operating, LLC

Response:

The BLM concludes that the analysis regarding the effects within 660 and 1,320 feet of roads are valid and should remain in the EIS and SAIC (2002b). If funding and personnel allow, the BLM may initiate a study regarding the effects of roads on big game on FFO land. This study would include determining the number of vehicles using FFO roads as mentioned above as well as measuring other parameters such as big game use of habitats relative to roads and road density, big game population sizes, and other parameters.

Category: BLM Management Capacity/Strategy

Comment:

Additional inspectors and other field staff are needed to enforce standards, lease requirements, and COAs.

Paul Adams
Jennie Dear
Bill and Marguerite Flick
Paul Lerno
Louis Montoya
Thomas Mullins, Synergy Operating, LLC
Ken Stanley
Ron Taylor
Barbara Truby, Truby Ranch

Response:

The FFO has recently received an allocation to hire additional minerals staff. Resources, including staff, are based on annual budget allocations. However, the RMP can be used to establish the need for funding requests so it can be implemented.

Comment:

Document compliance problems for oil and gas wells and require that problems be fixed before any new APDs are approved for that operator. Use the grazing permittee as the watchdog to monitor compliance to assist BLM staff.

Rob Costello

Response:

Although BLM has in the past and will continue to follow-up on problems brought to our attention by members of the public, because an enforcement action is potentially involved, the authority rests solely with the BLM to enforce compliance.

Comment:

Don't acquire more land. You do seem to have more land than you can handle right now.

Mary Beth Truby, Truby Ranch

Response:

BLM only intends to acquire more land if it would improve the management of the resources within SDA or other boundaries.

Comment:

The FFO needs to do a better job of enforcing compliance with existing laws, policies, and COAs, including adequate reclamation and implementation of mitigation measures.

Charlene Anderson
Keith Baker
Paul Bandy
J.D. Barnett
Heather Beghtol
Ann Borden
Len Carpenter, Wildlife Management Institute
Billy Chiquito, Pueblo Pintado Community
Beth Corter
Caren Cowan, NM Cattle Growers Association
D'Arline Crawford
Donald DeCarlo, Devon Energy Corp.
Liesl Dees
Nora Flucke
Ann George
Jan Holt
David Hamlow
Wilma Jean Kaime, Kaime Ranch
Gary Markestad, XTO Energy, Inc.
Eileen Music
Evert Oldham
Mark Pearson, San Juan Citizens Alliance
David Peters
Laura Pilewski
Janet Rees
Barry Rhea, Rhea Environmental Consulting
Jack Scott, City of Aztec
Deborah Seligman, NM Oil and Gas Association
Charles Stone
Barbara Truby, Truby Ranch
David Wacker, Conoco, Inc.
Susan Wible

Response:

Recent reorganization, since the publication of the Draft RMP/EIS, has created a compliance arm within the FFO Environmental Protection Team. This emphasis on compliance seeks the following objectives: 1) to assure that all new and old development meets all conditions of approval. 2) to focus on emphasis of conditions of approval on existing infrastructure to bring this development to appropriate standards. 3) to utilize an interdisciplinary team of resource experts to assess the ecological condition of the reclaimed well locations and recommend appropriate action based on ecological health standards. 4) to review and clear the backlog on existing abandoned well locations.

Comment:

There should be some discussion of how the proposed OHV regulations would be enforced.

J.D. Barnett

Response:

Changing the majority of the land in the FFO to OHV access that is limited to maintained roads, with signage indicating areas that are open or closed to OHV access, would assist in enforcement of OHV regulations by clarifying the locations where OHVs are allowed for the public and the enforcement staff. It would be clear that, on most roads, OHVs would be permitted, while most OHVs traveling cross-country would be in violation.

Comment:

BLM must protect the environment in the Four Corners.

Paul Lerno

Response:

While limited resources are always a concern in site-specific situations, implementation of BLM policies and guidelines are a priority of the FFO staff. To that end, they have recently made some changes to staffing to supplement their Environmental Protection Team.

Comment:

Please protect potential access to our environment—to our air, our water, our land, and our quality of life—in a resource-sensitive way.

M. Hawkins Rebecca Koeppen

Response:

It is assumed, as described under Continuing Management Guidance in Chapter 2, that current BLM policy and guidelines would provide the basis for minimizing negative effects on surface resources while allowing oil and gas development to occur. A section on mitigation measures and monitoring efforts has been added to the PRMP/FEIS to more clearly explain the measures to be employed to minimize negative impacts to surface resources.

Comment:

Oil and gas companies should be required to set aside funds for rehabilitation of the land and air, and to be liable for health problems.

John Herr

Response:

Oil and gas companies currently post national bonds that cover all of their leases and wells. There are requirements for them to adequately reclaim the sites and other federal and state laws govern offsite damages to surface water. Many activities and industries combine to affect air quality in the region. Unless it can be definitely shown that oil and gas companies are the sole cause of damage to air quality, it would be impossible to make them liable for all impacts.

Comment:

Will the industry pay for the water remediation systems to extract the hydrogen sulfide and the methane out of the well water?

Darsi Olson

Response:

Hydrogen sulfide and methane have not been shown to be a problem in the groundwater in this region.

Comment:

I did not see an adequate definition of the protection of surface resources on private property.

Bill Humphries

Response:

On Page 2-2 of the Draft RMP/EIS, there is a statement that BLM issues the APDs for federal minerals and encourages the operator or lessee to obtain consent and agreements for surface use from the private surface owner. It is up to the non-federal surface owner to negotiate and implement protection and management of their surface resources directly with the lessee.

Comment:

Until FFO can develop effective reclamation techniques, and consistently enforce their implementation, no decision that relies on the assumption that current reclamation procedures are effective will be valid.

Gedi Cibas, NM Environment Department

Response:

Current BLM policies and guidelines provide effective reclamation methods. With the increase in staffing that is now occurring, enforcement should be more successful.

Comment:

Appendix G should be identified as a general list of potential COAs that may be amended, waived, or specified to meet site-specific requirements. The comment includes detailed recommendations for changes to the wording of the text in Appendix G.

John Zent, Burlington Resources – San Juan Division

Response:

Appendix G is included in the document only as examples of the Conditions of Approval and Standard Terms and Conditions that may be used and to provide context to the information in the RMP/EIS. As explained in Chapter 2 under Continuing Management Guidance, each COA varies in its detail according to the site requirements and the findings of environmental and cultural resource surveys during the approval process. It also explains that these can change over time to comply with changes in policy, laws, and regulations. The documents in Appendix G are not under consideration for revision.

Comment:

The final plan should fully recognize the concept of multiple use management and not be driven by one dominant use.

Len Carpenter, Wildlife Management Institute
Rebecca Koeppen

Response:

Multiple use management is a primary consideration in BLM land management, which is the reason that SDAs have been designated with management prescriptions that address many uses of the land. The plan was driven by the major issues identified during scoping and proposes changes to the management of other activities such as OHV use and land transfers. In the high development area, oil and gas development are important drivers for land management because the BLM must allow for the development of existing leases.

Comment:

Page 1-10: The word "should" in the last sentence on the page should be replaced with the word "will." Managing split estate lands requires more effort on the part of the federal government than managing in-holdings.

Brian Wood, Permits West, Inc.

Response:

The text has been changed as recommended.

Comment:

No adequate discussion of the enforcement of OHV regulations is included in the DEIS. Roads allow increased recreational access to OHVs, which results in increased disturbance to wildlife. Increased OHV use leads to extensive and long lasting destruction of habitat.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

Under the Preferred Alternative, extensive changes to OHV management are proposed, some of which are proposed to limit cross-country travel in critical wildlife habitat, riparian areas, and other high resource value locations in the field office.

Category: BLM Planning Criteria

Comment:

The Planning Criteria were under-developed and short-sighted. The "5 Planning Issues" have exacerbated an approach that needs better direction. I suggest not focusing on several site-specific issues, but paying greater attention to regional resources, ecosystem management and best available technologies.

Wano Urbonas, San Juan Basin Health Department

Response:

The planning issues were based on the comments received during public scoping. The planning criteria were developed to address the issues by considering scoping comments and knowledge of the BLM and the cooperating agencies. Regional resources, ecosystem management, and best available technologies were incorporated into one or more of the alternatives and their analysis. Due to the land use plan level of the RMP/EIS, site-specific issues were not and could not be addressed.

Category: CBM

Comment:

The DEIS does not include a specific analysis of horizontal drilling which may be specifically suited for coalbed methane development. The DEIS needs to analyze this proven, reasonable alternative technology for extracting gas. It could potentially eliminate the need for thousands of new wells, particularly if one presumes that about half the proposed wells are CBM wells, and one horizontal well can replace four vertical wells.

Mark Pearson, San Juan Citizens Alliance

Response:

The EIS incorporates alternative drilling technologies in its analysis of impacts. The RFDS, upon which the EIS is partially based, considers a 25 percent decrease in surface locations associated with all alternative drilling technologies, which could include horizontal drilling. The BLM is not in the position where it can mandate the type of technology used to extract minerals from any particular formation; however, it does impose conditions that manage the condition of the land's surface and its natural resources. Specific decisions related to drilling and production are left to the operators, subject to the approval of the BLM. An overview of CBM operations in the San Juan basin of northwestern New Mexico and the Powder River basin of central Wyoming has been added to the PRMP/FEIS. It includes a brief description of how CBM is formed and provides the basis examining why production operations may vary from play to play. The BLM is monitoring the results of CDX and other operator's directional operations in the Fruitland Coal and other horizons in the San Juan Basin. We hope that their endeavors both in the short- and long-term will prove to be successful and have far reaching benefits for both resource recovery and reduction in surface impacts.

Category: Coal Development

Comment:

Disturbance from underground coal mining activities would be less than oil and gas development. Stipulations allowing development of coal leasing in paleontological protection areas on a case-by-case basis would be acceptable.

Charles Roybal, BHP Billiton Limited

Response:

Due to resource values (paleontological) and health and safety concerns, only a portion of the coal lease interest area outside of the paleontological and recreational SDAs would be available for leasing under Alternative D. Under Alternative B, all of BHPs coal leasing interests would be available for leasing and the SDAs would be reduced to an area outside of the proposed coal lease boundary (see Maps B & D).

Comment:

BLM should be able to limit public access to areas that may be unsafe due to underground coal mining.

Charles Roybal, BHP Billiton Limited

Response:

A portion of the Additional Coal Interest area (Twin Peaks) would be closed to coal leasing because of the Piñon Mesa Recreation area. The lands in T30N, R14W, section 10, 15, 14 and portions of 22, 23 and 26 would be closed to leasable and salable minerals. This would minimize potential liability to the United States, the State of New Mexico and BHP.

Comment:

It is unfair to limit underground coal mining in areas where oil and gas development would be permitted since disturbance from the former would be far less than the latter.

Charles Roybal, BHP Billiton Limited

Response:

Comment noted. Oil and gas surface disturbances are more easily controlled than underground mine subsidence. New Mexico Mining & Mineral Division requires complete closure of surface areas associated with underground mining activities. Therefore, impacts from oil and gas production are less restrictive on outdoor recreational opportunities and more easily managed than mining operations.

Comment:

As to private leases held by oil and gas lessees within the Deep Lease and Deep Lease Extension areas, the applicable coal reservation under the Coal Lands Act of 1910, counsel in favor of the federal coal being the primary resource and dominant estate for development purposes.

Charles Roybal, BHP Billiton Limited

Response:

Comment is noted.

Comment:

Tables 2-11 and 2-12 [pgs 2-243 through 2-245] compare options and impacts of the four resource management alternatives. The potential impact from coal extraction, processing, and use should be included in these tables including, but not limited to, surface disturbance, erosion, loss of native vegetation, wildlife habitat loss, air quality over 20 years, ground water, visibility, cultural sites, paleontology, noise, and employment. Map 2-9 shows suitable areas for Alternative B. It should be retitled if it is also applicable to Alternatives C and D. Otherwise, add maps that indicate coal development areas under Alternatives C and D.

Gedi Cibas, NM Environment Department

Response:

At the time leasing occurs, the State of New Mexico Mining and Mineral Division requires a full mining and reclamation plan that quantifies vegetation, soils, water, air, wildlife, noise, visibility, and resource values.

Comment:

The RMP should identify the potential air quality impact of coal development under each proposed alternative and discuss how those issues will be addressed. The following paragraph would clarify these points: "For any proposed new coal development, increase in current extraction, or use, the BLM will coordinate with all appropriate agencies of State, Federal, and Tribal Governments to ensure compliance with laws and regulations. Project-specific modeling and an environmental assessment will be prepared with the opportunity for public input. Air quality will be examined in conjunction with the NMED-AQB, following applicable permit procedures."

Gedi Cibas, NM Environment Department

Response:

It is explained on Page 2-4 of the Draft RMP/EIS that "EAs are developed prior to leasing and before mining is approve, with the purpose of analyzing the impacts of coal mining on the natural and cultural resources in the area of the proposed mine site." Additional text has been added to the PRMP/FEIS to clarify this.

Comment:

Alternatives B, C, and D all include increased emphasis on coal development. A sense of the increase can be obtained by looking at the Summary Table (DEIS at Summary-3), which shows coal acreage increasing 2.75 times, from 138,000 acres to 278,275 acres under Alternative C, "environmental emphasis." The maps are unclear about this aspect. Map 2-4 (back insert) shows specially designated areas under Alternative A (current plan), including extensive areas called the "coal belt." This feature disappears on Maps 2-8, 2-10, and 2-11, leaving the impression that under the new RMP, large areas are no longer available for coal mining. Map 2-9 (DEIS at 2-228) shows areas suitable for coal development. Map 2-2 (DEIS at 3-22) shows the same areas being disposed because they are of no special value and are difficult to manage. The DEIS discusses the Coal Belt SMA and says: "The FFO would retain the public (surface) land in the SMA because of the large coal deposits and the possibility of conflicts between other future surface owner(s) regarding coal leasing and/or mining." (DEIS at 2-214). Maps 2-10 and 2-11 do not show the 14 PRLAs for coal that are included in Alternatives C and D. The 17 Competitive Coal Leasing Tracts that are part of Alternative D should also include Map 2-11. (DEIS at 2-234 and 2-241). It would be most helpful to add maps that clearly show the areas where coal development would be encouraged under Alternatives B, C, and D. Map 2-9 shows suitable areas for Alternative B. If it is applicable to Alternatives C and D as well, it should be so stated. A discussion of the relative probability under each alternative would also help. The planning area contains coal of different grades, location, and depth, all of which affect commercial viability. Map 2-9 shows many areas that would seem to be excluded due to close proximity to Chaco Culture NHP. Much of the suitable area also fails the criteria (DEIS at 2-227) of "areas with a coal transportation system" and "a viable market." The DEIS should simultaneously apply all screens and remove areas that are not suitable under all criteria.

Mark Pearson, San Juan Citizens Alliance

Response:

The intent of the information presented regarding the issue of coal leasing suitability assessment in the RMP/EIS is to identify the areas that have the potential to be available for coal mining, by excluding all areas that are determined to be unsuitable. The detailed information on the areas available for coal mining are presented in Tables 2-7 and 2-8 or in the text on Pages 2-212-215. The text under Alternatives B, C, and D states which of these areas would be excluded under each alternative and what areas, if any would be added for consideration. The boundaries of these areas were only presented on Map 2-8 because this is the first alternative that includes all of the areas except the Coal Belt SMA. Maps 2-10 and 2-11 have many more ACECs and other areas, so adding the coal areas to these would make them very difficult to read. The text under each alternative states that the Coal Belt SMA was dropped from all action alternatives, resulting in it only being shown on Map 2-4. On Page 1-12 in the Draft RMP/EIS, it states that "coal development potential would be addressed when data are available to estimate coal reserves." The probability of mining a specific area is so dependent on market and other economic factors that BLM does not believe that it can successfully predict this over a 20-year period. Map 2-9 was developed by applying the available GIS data to the FFO area but does not represent the application of all of the unsuitability criteria. This would be done on a site-specific basis when a lease application is received.

Comment:

Under its current mine plans, SJCC has coal reserves available to serve its customers through 2017. Accordingly, within the 20-year timeframe envisioned under the Draft RMP, SJCC may require the leasing of additional lands. Moreover, given the uncertainties associated with coal development at SJCC's San Juan Underground Mine, it is conceivable that SJCC may require access to additional federal coal reserves in advance of 2017. In fact, given planning horizons necessary for coal mine development and power plant management, SJCC may need to invoke the lease by application process well in advance of 2017. BLM should confirm that additional coal leasing in the East Piñon and Twin Peaks areas to the north and east of SJCC's current federal coal leases is appropriate, thereby avoiding any need to amend the RMP in the future. While SJCC is not currently pursuing exploration in these areas, SJCC submits those areas should be available for coal leasing in the future.

Charles Roybal, BHP Billiton Limited

Response:

Additional coal leasing in the East Piñon and Twin Peaks areas would be appropriate. The only exception would be a portion of the Additional Coal Interests areas in the Twin Peaks area. The lands in T30N, R14W, sections 10, 15, 14 and portions of 22, 23 and 26 would be closed to leasable and salable minerals because of Piñon Mesa Recreation area. Closing this area is consistent with wording on Page 2-176 of the RMP.

Comment:

BLM should continue to recognize as it has in the past (see 1998 Farmington RMP Amendment) that in certain areas, coal development should be the "primary resource use." This recognition is included in the 1998 Farmington RMP Amendment concerning the Deep Lease Extension, Federal Lease No. NMNM99144. Further, BLM should broaden its determination that coal should be the "primary resource use" to not just the Deep Lease Extension lease, but also the Deep Lease, Federal Lease No. NMNM 28093. As reflected in modest gas production and in the relative absence of oil and gas development activity in the vicinity of the Deep Lease and Deep Lease Extension, those lands are not productive for oil and gas development, in stark contrast to other portions of the San Juan Basin.

Charles Roybal, BHP Billiton Limited

Response:

Additional coal leasing in the East Piñon and Twin Peaks areas would be appropriate. The only exception would be a portion of the Additional Coal Interests areas in the Twin Peaks area. The lands in T30N, R14W, sections 10, 15, 14 and portions of 22, 23 and 26 would be closed to leasable and salable minerals because of Piñon Mesa Recreation area. Closing this area is consistent with wording on Page 2-176 of the RMP.

Comment:

Clarify the location of the high development area and whether it includes SJCC's Underground Mine, the Deep Lease Extension, and the Additional Coal Interests at East Piñon and Twin Peaks.

Charles Roybal, BHP Billiton Limited

Response:

The boundary of the high development area was generated using the RFDS sections that had more than 1 or 2 wells projected. Map 2-1 of the PRMP/FEIS illustrates the High Development Area for Oil and Gas.

Comment:

On Page 4-52 of the Draft RMP, BLM states: "San Juan [Generating Station] could also be supplied by a possible expansion of the Navajo Mine (not on FFO land)." SJCC presumes this statement is part of some alternatives analysis, and that BLM is implicitly suggesting that the San Juan Generating Station somehow could be supplied with coal from the Navajo Mine. SJCC states that while it is conceivable that expansion of the Navajo Mine and the development of Navajo coal, from which neither the State of New Mexico nor the federal government would receive any royalty, may be theoretically possible as an alternative coal source, significant capital expenditures and transportation infrastructure development would be necessary to make it so. In addition, under applicable federal laws, the Navajo Nation necessarily would need to consent to the development of the infrastructure and other aspects of that project that would be required on the Navajo Reservation. Consequently, there are not assurances that such an alternative coal source would be available as a supply for the San Juan Generating Station.

Charles Roybal, BHP Billiton Limited

Response:

Comment is noted.

Comment:

Since there has been renewed interest in coal mining around the perimeter of Chaco Culture NHP, the National Park Service and Park staff would like to participate in the planning for the Coal Leasing Suitability Assessment.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

As stated in the RMP/EIS, all applications for coal leasing and mining would undergo reapplication of the unsuitability criteria and site-specific NEPA analysis. BLM would include the Chaco Culture NHP in the review process when applications would be in the vicinity of the Park.

Category: Coal Mining

Comment:

The DEIS frequently repeats the statement: "If new mines are opened as old ones are reclaimed, no new significant impacts to air quality would be anticipated beyond current conditions." (e.g., DEIS at 4-65). The basis for this statement is questionable. The assumption that old mines will close is not substantiated. If mines do close, reclamation activity will involve equipment and soil movement that will generate fugitive emissions.

Mark Pearson, San Juan Citizens Alliance

Response:

Two major coal mines in the planning area are in fact closing. The La Plata mine has closed for production and surface mining at the San Juan mine will close soon. Prior to mine permit approval, all existing and any new coal mines are required to have an approved Dust Management Activity Plan and Air Monitoring Plan.

Comment:

Surface mining is the method most often discussed. Up to 350 feet of overburden would have to be removed in order to access coal seams. The blasting and transport associated with this amount of removal would generate huge amounts of particulate matter. Finally, the DEIS does not address end-use. If the coal is burned within the State of New Mexico, emissions of NOx, SO_2, and CO would increase greatly. If coal is burned within the FFO Planning area, the emissions would include NOx, SO_2, and particulate (PM). All contribute to regional haze problems. NOx is also involved in the formation of ozone. Ozone and haze are both pending problems in the Four Comers area, and the public is concerned. A new power plant within the FFO would have to request a permit from the NMED, and the potential air quality impact would have to be assessed in detail at that time.

Mark Pearson, San Juan Citizens Alliance

Response:

The current surface mining methods and emissions from power plants have already been taken into account in the monitoring data from the NMED monitoring stations used to establish baseline air quality. No new power plants or significant increases in coal mining are known to be planned for the 20-year planning period, so these potential impacts have not been analyzed.

Category: Conditions of Approval

Comment:

BLM should acknowledge that Appendix G is simply a list of potential COAs, not all of which will apply to every well. In addition, BLM should clarify whether the COAs may be amended over time to include other COAs, as necessary, on a site-by-site basis, and if so, how they will consider the economic impact on the proposed operation. BLM should also clarify the Authorized Officer may waive certain COAs.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

The Conditions of Approval as listed in Appendix G will apply to a proposed well as specified in the well-specific COA document. Exceptions or modifications to the COAs will be detailed in the well-specific document that is associated with the APD.

Comment:

Several comments included multiple revisions/clarifications to the proposed COAs listed in Appendix G of the Draft RMP.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The BLM will consider the revisions proposed in these comments and will incorporate any changes into the final COA as appropriate.

Category: Cultural Resources

Comment:

The DEIS should provide specific information on the number of projected wells to be drilled and roads to be constructed with respect to the known archaeological site types and frequencies within specific geographical (or UTM) coordinates. Also, the number of Specially Designated Areas that could be extended to protect threatened sites should be presented, as well as whether new SDAs are anticipated for future protection.

Mark Pearson, San Juan Citizens Alliance

Response:

The number of archaeological sites that may be affected by new wells and roads are presented for each alternative in Table 4-10 by watershed. BLM cannot provide specific coordinate locations of archaeological sites to the public. Without the specific locations of proposed wells and roads, the exact locations and types of sites that would be affected are not known. New SDAs have been proposed in Alternatives C and D to help protect important sites that may otherwise be threatened.

Comment:

We are concerned that any development being proposed should minimize the impacts on the many archeological sites.

Paul and Carolyn Staby

Response:

The management prescriptions in the existing and proposed ACECs, in addition to standard policy that require an archaeological clearance before surface disturbance is permitted (described in Chapter 2), would protect important cultural resources.

Comment:

For example, by combining information from Table 4-2 (EIS) with that provided in Tables 3-1 (EIS) and Table 2-2 from the Technical Report, one can determine that 71 new wells are projected for the Chaco Wash watershed (2,918,965 acres) where the highest site frequency is that of the P-II period (4,439 sites). This can be compared with 1,256 new wells projected for the Navajo Reservoir watershed (378,398 acres), where the highest frequency site is that of the Dinetah/Gobernador period (690 sites). Obviously, the Dinetah sites are more threatened in the Navajo Reservoir area than are P-II sites in the Chaco Wash watershed. It would seem that such information, if available, would be extremely valuable for management decisions as the oil and gas development is played out.

W. James Judge

Response:

The separation of tabular data between the EIS document and the Technical Report was done to reduce the overall size of the EIS. No changes are anticipated in the structure of the Final EIS and Technical Report.

Comment:

In Chapter 3, we are given some indication of the kinds of sites that might be impacted by the oil and gas development (Table 3-19). These are organized and reported by 19 separate watersheds, but what is lacking is a tabular comparison of the number and types of known (recorded) sites within each watershed correlated with the projected number of wells to be drilled within each watershed. Though available (if one has the Technical Report), the information is not presented in any single table where it can be adequately evaluated.

W. James Judge

Response:

The separation of tabular data between the EIS document and the Technical Report was done to reduce the overall size of the EIS. No changes are anticipated in the Final EIS and Technical Report.

Comment:

The Cultural Resource Section of the EIS (pp 3-65 through 3-91) provides a good review and summary of the cultural history of the area by major time periods. This should be updated before the Final EIS is released to include, among other references, the recent Chaco Capstone conference publications, and summary articles such as that provided by Barbara Mills (2002) Journal of Archaeological Research 10(1):65-119.

W. James Judge

Response:

The original text was prepared prior to publication of these two references. The document provides an adequate summary of cultural history without going into more detail.

Comment:

The Bureau's response to this concern may well be that a mitigated archaeological site is not really lost, since the data are gathered scientifically with reference to peer-reviewed and approved research design (for example, one reviewed and endorsed by current San Juan Basin archaeological researchers). Further only limited numbers of the reports are printed, and those do not receive adequate distribution to the research community. Thus, mitigation, as carried out in a compliance situation, rarely compensates for the loss of resource.

W. James Judge

Response:

The comment is noted.

Comment:

We learn from the summary of the alternatives (Summary-12) that as many as 1,896 sites would require mitigation or avoidance under Alternative D, and that there are 79 SDAs that will protect cultural resources (Summary-13). We are not given information as to how the number 1,896 was arrived at, nor do we have no way of knowing whether any of the 1,896 sites will be protected in the 79 SDAs, nor what kind of sites will be mitigated and/or avoided, nor whether new SDAs could be created to protect them.

W. James Judge

Response:

These numbers are based on quad-specific site densities that are then weighted according to the proportion of each quadrangle in a given watershed. This weighted average watershed site density is multiplied by the number of acres projected to be affected by each alternative in each watershed. Most of the sites in existing SDAs will be protected.

Comment:

We are told that under Alternative A as many as 736 sites would be mitigated or avoided (Summary-12), less than half of those predicted under the Preferred Alternative. This would seem much better than Alternative D, yet we still do not have enough information to evaluate what will constitute an acceptable loss of the resource.

W. James Judge

Response:

This comment refers to more project-specific concerns. This EIS addresses issues at a landscape scale planning level. Implementation of BLM policy and compliance with federal and state laws would be required and would result in archaeological clearances and site-specific mitigation measures during the siting and approval of each well.

Comment:

Second, there is no indication of how many actual sites (cultural resources) there are in each of the specially designated areas; the only figures given are acreages. Thus, since one does not know what percentage of the total number of known sites has been designated for protection, one cannot determine realistically how many of the sites which will be impacted by the proposed mineral extraction will actually be protected.

W. James Judge

Response:

Specific sites in each SDA are shown on pgs. 3-68, 3-70, 3-71, 3-74, 3-75, 3-77, 3-78, 3-79, 3-83, and 3-84. In some SDAs, a complete inventory of all cultural sites has not been completed. Until the exact locations of wells, roads, and pipelines are known, no one knows the number of sites that would be impacted by the proposed development. This will be determined during the APD process that will still require an EA and an archaeological inventory prior to any approval or development of protective or mitigating measures.

Comment:

In sum, review of this Draft EIS reveals the fact that we still lack sufficient information to evaluate the full impact of the proposed development on cultural resources. I recommend that the EIS be rewritten, with more specific information given on the number of projected wells to be drilled and roads to be constructed with respect to the known archaeological site types and frequencies within specific geographical (or UTM) coordinates.

W. James Judge

Response:

This EIS is lands use plan level in nature and is not intended to address such site-specific concerns. The BLM is not permitted to publish the exact locations of archaeological site types for general public review due to state and federal laws. Also, the exact locations of wells, roads, and pipelines are not yet known.

Comment:

Oil company representatives have stated that assessment of invaluable cultural sites consists of assessing what archeological sites may be present, then setting platforms on them prior to initiating drilling activities. A local archeologist pointed out that this does not constitute conservation of natural resources.

Leslie Barnhart

Response:

This is not a mitigation measure that is supported by BLM policy or SHPO guidelines.

Comment:

Cultural resource protection must receive a top priority. Our cultural sites are irreplaceable, and hold answers to many questions that have not been solved by archaeologists. In addition to the damage caused by OHVs and other recreational use, damage from pot hunters and lack of stabilization is taking a severe toll.

Glenn Beiter

Response:

This concern is acknowledged in Pages 4-41 to 4-42 and proposed management practices outlined in 4-77 of the Draft RMP/EIS.

Comment:

Comments on the Cultural Resources Technical Report (June 2002): 1-1: The following quote from this page is both ambiguous and erroneous, referring to Table 1-2: "It may be seen that prehistoric non-structural sites are most common at 6,000-foot elevations, although historic non-structural sites are most common at 6,500-foot elevation zones." In addition to redundant grammar in the first part, the second half of the sentence is not true, according to Table 1-2. Since the purpose of the exercise was to demonstrate potential bias in the survey data, one wonders if that bias can be properly evaluated if the data in the table are incorrectly interpreted? This is important since, as stated on the same page, "potential sources of bias need to be examined as a prerequisite for planning future cultural resources management practices," presumably when the well drilling operations begin.

W. James Judge

Response:

The text reference to Table 1-2 of the Technical Report regarding historic non-structural sites is an editing error and has been corrected in the Final EIS.

Comment:

Comments on the Cultural Resources Technical Report (June 2002): 1-2: Archaeological survey coverage is not uniform, instead it is concentrated in north and northeast sectors. Some quads have 70 percent survey coverage, most average 1 percent. Thus it is difficult to determine whether patterns evident in existing ARMS data are real or reflect survey bias. This is particularly true when one views the site density maps.

W. James Judge

Response:

This EIS is landscape scale in character and not designed to address or remedy variations in survey coverage.

Comment:

Comments on the Cultural Resources Technical Report (June 2002): 1-2: Archaeological survey coverage is not uniform, instead it is concentrated in north and northeast sectors. Some quads have 70 percent survey coverage, most average 1 percent. Thus it is difficult to determine whether patterns evident in existing ARMS data are real or reflect survey bias. This is particularly true when one views the site density maps.

W. James Judge

Response:

A figure showing variability in survey coverage was inadvertently omitted from the Draft EIS; this has been added in the Final EIS. This EIS is landscape scale in character and not designed to address or remedy variations in survey coverage.

Comment:

Comments on the Cultural Resources Technical Report (June 2002), 3-1: Regarding the site distribution information presented in the Chapter 3 maps, the question is, how will the information be used? The most obvious conclusion from examining the maps is that site densities are highest where intensive surveys have been conducted, but this is not noted in the analysis.

W. James Judge

Response:

The phrase "Variations in site densities appearing on these maps are often, but not necessarily always, a function of differences in the number and spatial extent of prior archaeological surveys" has been added to the Final EIS.

Comment:

Comments on the Cultural Resources Technical Report (June 2002): 4-1: A very revealing statement is made on this page regarding special management designations, in that rare, yet significant, sites are under-represented in such areas. This could mean that during well-drilling operations, significant sites could be ignored and destroyed because they are not represented in SDAs throughout the planning area.

W. James Judge

Response:

This assertion is predicated on the assumption that archaeological surveys would not be conducted prior to any drilling operations. This is incorrect and, consistent with Section 106 compliance procedures, rare/significant sites would be identified prior to drilling in areas outside existing SDAs.

Comment:

The DEIS provides no documentation about the location of the impacted sites relative to the SDAs. It is also important to note that mitigation does not necessarily translate into scientifically useful data because the analysis and reports from the excavations are not distributed among scientific peers for review and critique.

Mark Pearson, San Juan Citizens Alliance

Response:

The EIS is landscape scale in character and site-specific impacts are not evaluated. This will be completed as part of normal Section 106 compliance.

Comment:

Cultural History: Language should be included in the beginning of this section summarizing the benefits and knowledge that have been uncovered through oil and gas land development and surveys, as it relates to the cultural history of the area. Many significant archaeological sites have been identified and evaluated as a standard practice in the development of the oil and gas resources in the planned area. Specific numbers, such as the number of archaeological sites identified, and number of surveys conducted by oil and gas industry on a yearly basis, would be of note. A reference to another document with this information would also be adequate.

Thomas Mullins, Synergy Operating, LLC

Response:

The comment is noted. The FFO maintains records of recorded archaeological sites that have been identified during all of their projects. While oil and gas development generates many surface disturbing activities, cultural resource clearances are conducted for a wide variety of FFO actions. Under Continuing Management Guidance in Chapter 2, the document states the procedures and requirements for cultural resource clearances.

Comment:

Pages 3-82-83, Mexican Period (A.D. 1821-1848): You list the Dogie Canyon School as being built during this period. My (still living) aunt actually attended this school, and can verify that it was built in 1918. She does say that she does not feel "historic."

Jennifer Truby, Truby Ranch

Response:

This was an editing error and the Dogie Canyon Schoolhouse also appears more appropriately in the Euro-Anglo period discussion that follows.

Comment:

Given the location of oil and gas development, some cultural history periods may experience significantly greater impacts than other periods. For example, because so many more wells are proposed for the Navajo Reservoir watershed than Chaco Wash, it means far more sites from the Dinetah/Gobernador period will be impacted than from the Pueblo-II period. Should BLM consequently create more SDAs for the Dinetah period as a result? The DEIS should analyze questions such as these.

Mark Pearson, San Juan Citizens Alliance

Response:

The proposed La Jara and Frances Mesa ACECs lie within the Navajo Reservoir watershed. Although the proposed La Jara designation is primarily for the Anasazi components, there are numerous Dinetah/Gobernador period sites as well. The Frances Mesa designation is primarily for Dinetah/Gobernador period sites.

Comment:

In Chapter 4, there was little or no concern for the effects to cultural resources by any of the five Planning Issues. Only considering two impacts from Oil and Gas Leasing and Development is very near-sighted. The wide variety of both short- and long-term impacts of the permitting, construction, maintenance and abandonment of facilities associated with development need to be addressed and taken into account as an environmental consequence. Under Land Ownership Adjustment it is not true that "None of the significant known cultural sites and TCPs would be in disposal parcels." Numerous sites or types of sites known to be eligible for the National Register of Historic Places are in areas identified to be disposed. What is going to be done with these sites? Under OHV Use: What is the effect of letting vehicles park off of maintained roads (Table 2-3) on sites? Under Specially Designated Areas how will sites in non-cultural specially designated areas be protected? Under Coal Leasing Suitability Assessment what is the effect to the sites of leasing and development. Especially to Chaco Culture NHP and the Chacoan outliers and sites listed on the National Register?

Glenna Barnes

Response:

This document is at the land use plan level so the site-specific impacts cannot be known until the exact locations of mineral development, land transfers, and OHV access are known. As described under Continuing Management Guidance in Chapter 2, all BLM actions, including oil and gas development, land ownership changes, coal mining, management of specially designated areas, and designation of OHV access, must comply with the agency policy and federal regulations for protection of cultural resources. Many of the impacts listed in the comment would be minimized by application of standard agency policy and by the mitigation and monitoring measures added to Chapter 4 of the PRMP/FEIS. The statement that " None of the significant known cultural sites and TCPs would be in disposal parcels" is based on the general FFO policy not to transfer significant cultural sites and TCPs.

Comment:

The cultural landscape of the designated Wilderness areas, NPS lands, and "cultural areas" were not described or analyzed for potential impacts under each alternative in the EIS, nor was it described on Page 3-60 under "visual resources."

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

Cultural resources were described in the Cultural Resources section and included recorded archaeological sites in each watershed in the planning area and known TCPs. They were not repeated in other sections. While they were not identified by location other than watershed, such as NPS or Wilderness Area, they were all included.

Comment:

The EIS states that 1800 archaeological sites will be mitigated or avoided under the Preferred Alternative, however there is little discussion on what "mitigation" entails. There is no analysis or discussion of ethnographic resources including compliance with NAGPRA (Native American Graves Patriation and Repatriation Act) issues. If 1600 archaeological sites are mitigated or excavated and destroyed, then what are the precautions for inadvertent discovery (of) archaeological sites or of human remains under NAGPRA? How will the BLM enforce NAGPRA law on industry development on public lands?

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

Mitigation and monitoring measures have been added to Chapter 4 in the PRMP/FEIS. All actions by the BLM must comply with federal laws and agency policy as stated in Chapter 2 under Continuing Management Guidance for Cultural Resources.

Category: Cumulative Impacts

Comment:

The cumulative effects of all alternatives, including the Preferred Alternative, are not adequately addressed in the document, because of the assumption that the current situation is stable when, in fact, it is not.

Caren Cowan, NM Cattle Growers Association

Response:

No assumption has been made that the current situation is stable. This is the reason that the No Action Alternative shows changes in oil and gas development over the planning period.

Comment:

The following are examples of current, existing problems in areas of oil and gas exploration and development that have not been addressed in the RMP or EIS: Cumulative damages and effects of roads, pipelines, and well pads on entire watersheds and the subsequent degradation; Excessive surface damages and inadequate reclamation; Invasion of noxious weed and brush species; Lack of specifications, planning design and enforcement of surface protection requirements; Inadequate protection of fresh water, both surface and aquifer; Lack of adequate protection of private lands and federal surface leases.

Caren Cowan, NM Cattle Growers Association
Brian O'Donnell

Response:

Potential cumulative damages have been presented in Chapter 4 beginning on Page 4-114 in terms of the miles of new roads and acres of surface disturbance projected for each watershed if all federal and non-federal minerals were to be developed. A section on mitigation measures and monitoring plans has been added to the PRMP/FEIS to document plans for protecting surface resources including minimizing offsite impacts. Enforcement relies on adequate agency annual budgets and staffing. Additional staff positions have recently been added to the FFO to improve enforcement capabilities.

Comment:

The cumulative effects section of the discussion is wholly inadequate in addressing the potential resource effects of the proposed action. The analysis fails to provide meaningful information regarding past and current impacts and makes little attempt to quantify the cumulative effects of existing and proposed disturbance regimes. This approach was likely taken due to the lack of an adequate FFO baseline condition from which to begin the analysis. Meaningful cumulative impact analysis cannot be made without consideration of, at a minimum, other San Juan Basin oil and gas development NEPA documents (Carson National Forest, SUIT, Ute Mountain Ute, San Juan/San Miguel BLM-Colorado).

Cheryl Eckhardt, National Park Service, Intermountain Region
Barry Rhea, Rhea Environmental Consulting

Response:

Potential cumulative damages have been quantified to the extent possible with available information in Chapter 4. A combination of methods, including modeling based on assumptions in the document, GIS, and other recent documents were used. The new wells, miles of new roads, and acres of surface disturbance projected for each watershed if all federal and non-federal minerals were to be developed were quantified. Other impacts were mainly qualitative due to the land use plan level nature of the document, the large size of the planning area, and the availability of data. The different timeframes and schedules for the Southern Ute Indian EIS and the Northern San Juan Basin EIS, made it impractical to develop a basin-wide EIS. The issues involved with Oil and Gas development in the Colorado portion of the San Juan Basin, particularly those dealing with surface management, are sufficiently different from those in the FFO, that a basin-wide EIS would not provide the focused analysis needed to understand oil and gas development options. The Farmington RMP is a land use plan revision that encompasses and analyzes issues broader than just oil and gas development. Information from the Southern Ute Indian EIS was considered in the development of the Farmington DRMP/EIS and incorporated as appropriate. The Carson National Forest EIS is just getting underway and will incorporate the information from this document.

Category: Directional Drilling Technical Report

Comment:

The Directional Drilling Technical Report (SAIC 2002d) is inadequate and does not represent information from the San Juan Basin. The commenter cannot locate the reference cited as Engler et al. 2001.

Thomas Mullins, Synergy Operating, LLC

Response:

Data were provided by the FFO, which in turn used industry data provided by operators in the San Juan basin, were used in the preparation of SAIC 2002d. The RFDS was written by Engler, as the principal investigator for New Mexico Tech, in 2001 and is cited as such in the Draft RMP/EIS.

Comment:

Cost savings from directional drilling were not considered. The economic did not consider that throughout the planning area, the gathering lines, metering equipment, and some compression and dehydration equipment are owned by a separate party from the oil and gas producer.

Thomas Mullins, Synergy Operating, LLC

Response:

The analysis did not consider savings realized by the gas gatherer and was limited to costs incurred by the well operator. It was assumed that any potential cost savings to the gatherer did not directly affect an operator's decision to drill vertically or directionally. As noted in this comment, cost savings from directional drilling in SAIC 2002d is associated with location costs and road/pipeline access. If the operating costs used in the report were increased by 20 percent, the return on investment for a directionally drilled well would decrease slightly from 2.19 to 2.03 to one. Payout would take slightly longer, approximately 15 days.

Comment:

The surface disturbances and acreage associated with potential mitigation of surface disturbances through the use of directional drilling techniques are not detailed in the Directional Drilling Technical Report (SAIC 2002d).

Thomas Mullins, Synergy Operating, LLC

Response:

The purpose of the report, SAIC 2002d, was to provide an idea of whether this type of technology may be economically viable under a defined set of circumstances. Because many variables can impact the economic viability of a particular well, this analysis was deliberately broad and only as accurate as the assumptions that were used. To develop an analysis on a well-by-well basis would not be relevant considering the number of other variables whose values were assumed. Page 1-1 of SAIC 2002d specifies that the source of information for the costs per foot for drilling a particular kind of well was the FFO.

Comment:

The document does not explain the difference between build angle and actual hole deviation. Further, this document relates to mud directionally drilled wells on tight (less than 80-acre) development spacing in the Piceance Basin of Colorado. There are numerous San Juan Basin directionally drilled wells that can be researched to provide specific indications as to drilling-related problems. Local industry representatives should be contacted to voluntarily supply this information.

Thomas Mullins, Synergy Operating, LLC

Response:

The comments referring to build angle is correct. The information used in SAIC 2002d was obtained from the FFO, which obtained the information from local operators. It indicated that directionally drilled holes are usually drilled with mud in the deviated part of the wellbore.

Comment:

Cost numbers from the Piceance Basin are not applicable to this RMP-EIS. This document appears to have been added as a "filler reference."

Thomas Mullins, Synergy Operating, LLC

Response:

The information used in SAIC 2002d was obtained from the FFO, which obtained the information from local operators.

Comment:

Is it appropriate to supply the percentage of current vertically drilled wells and directionally drilled wells, in conjunction with discussion and percentages of proposed directionally drilled wells in the (SAIC 2002d)?

Thomas Mullins, Synergy Operating, LLC

Response:

The number of wells in existence that were drilled in the past using directional techniques is not relevant to the discussion of techniques that could possibly be used to drill future wells. The purpose of the RMP is to provide a guideline for future resource management and well development. Economic conditions and resource management objectives change over time. The guidelines and procedures used in the past may not be able to provide the direction necessary to make decisions for the future. Therefore, the number of wells drilled in the past may be of interest but is not inherently useful.

Comment:

The discussion regarding downhole commingling and completion of multiple zones within the same wellbore in SAIC 2002d is inadequate. A historical presentation regarding the history of downhole commingling is applicable, with detailed statistical presentation of types of formations commingled and number of formations commingled within wellbores throughout the planning area. There are several instances of directionally drilled openhole cavity completed Fruitland producing wells within the San Juan Basin. This may be a viable development option, and should be thoroughly reviewed and included in the RMP-EIS.

Thomas Mullins, Synergy Operating, LLC

Response:

The directional drilling document, SAIC 2002d, is intended to provide a general idea of the relative costs of employing alternative drilling technologies in the basin as compared to drilling vertically. Although the RFDS attempted to quantify the number of new completions and corresponding locations that can be expected in consideration of known formation reservoirs, it did not attempt to determine which completions are amenable to commingling, horizontal drilling, or any other of what this EIS terms "alternative technologies." It is possible that other "new technologies" will be developed within the 20-year period covered by the RMP/EIS, including the possible use of directionally drilled cavitation techniques. Their use would not be precluded merely because they are not specifically identified in the RMP/EIS. Although a historical description of downhole commingling may be of interest, it is not relevant in the context of the EIS. The RFDS, upon which the EIS is partially based, considers a 25 percent decrease in surface locations associated with all alternative drilling technologies, which could include horizontal drilling or commingling. The BLM does not have the authority to mandate the type of technology used to extract minerals from any particular formation; however, it does impose conditions that manage the condition of the land's surface and its natural resources. Therefore, the analysis of all alternative drilling technologies as they relate to surface disturbance is built into the alternatives effects analyses with the 25 percent decrease. In addition, a discussion of the technical details that determine the feasibility of commingling is not necessary in this document because it does not directly affect the analysis of alternatives in the EIS. The oil and gas companies that operate in the basin employ their expertise to determine which technologies are appropriate to extract the minerals from its leases. In short, this type of information is not relevant to the decision to be made by the BLM.

Comment:

It is requested that (SAIC 2002d) detail an explanation for the "Commingling Factor" of 1.22 listed on SAIC 2002d, Page 2-6, either through reference or a full subchapter regarding commingling.

Thomas Mullins, Synergy Operating, LLC

Response:

The referenced "commingling factor" of 1.22 is merely the ratio of the well cost per foot of a commingled/multiple completion well to a vertically drilled single completion well. It was derived from the figure listed in Table 2-3. The figures were obtained from the BLM, which, in turn, obtained the relative costs from oil and gas industry representatives.

Comment:

The simplified cash flow economic analysis models associated with drilling, presented as Case 1 and Case 2, are inadequate to use as a basis for drawing a definitive conclusion as to the viability of directionally developing oil and gas reserves.

Thomas Mullins, Synergy Operating, LLC

Response:

With the variability inherent in gas prices and operational costs, it is impossible to draw a definitive conclusion as to the viability of directionally developing oil and gas reserves. The purpose of the report, SAIC 2002d, was to provide an idea of whether this type of technology may be economically viable under a defined set of circumstances. By varying the assumptions contained in the analysis, certain economic situations would be more favorable for directionally drilling and operating than others. One set of economic circumstances may be more viable than another. The final decision, of course, is left to the operator at one particular point in time.

Comment:

Several of the input values are in error, and no reference sources are given for the assumptions.

Thomas Mullins, Synergy Operating, LLC

Response:

Information used to estimate typical well depth was an approximation based on a range of values obtained from various sources in the general literature and confirmed by the FFO. Information used to estimate costs of drilling and completion were obtained from the FFO in consultation with industry sources.

Comment:

The assumption in Case 1 regarding a seven percent production tax rate is not accurate. A cursory review of the New Mexico Severance and *Ad Valorem* Tax tables for the respective counties within the planning area will give a more accurate number. A figure of nine (9) percent should be utilized as typical. No federal royalty burden, a minimum of 12.5 percent, was included in the Case 1 economical model. This burden, or a higher composite burden such as 15 percent, be utilized for the economic model to account for the usual overriding royalty or other lease burdens. No gas transportation, gas processing, or gas marketing fee was assessed to the "Gas Price." This would have the effect of lowering the realized oil and producer's revenue. A reduction of 75 cents should be utilized as the figure to cover these items on average basis. No discussion or presentation of pricing differentials was made within the document. Pricing differential relates to the price penalty that San Juan Basin gas producers suffer to send their gas through the mainline to reach a market point. If the market point is changed to the El Paso Non-Bondad pricing hub outside Ignacio, then the $3.50 pricing assumption at the Henry Hub would be reduced to $3.00. A 50-cent reduction for basis differential should be included in the economic model. These royalty and additional cost items should be considered in all economic models.

Thomas Mullins, Synergy Operating, LLC

Response:

Incorporating the numbers provided by the commenter, case 1 would have an ROI of approximately 0.4 to 1. Payout would be in approximately 6.25 years. Case 2 would have an ROI of approximately 0.36 to 1. Payout would be in approximately 8.6 years.

Comment:

It is thought that that (SAIC 2002d) should quantify not just the well costs associated with the alternatives, but also represent the reserves that will be developed under each scenario. This information should be presented in a Table format. With the inclusion of the reserve numbers into this document, It is also necessary to make conclusions regarding the financial losses or gains represented by each of the alternatives. This economic analysis can be performed with the simple undiscounted calculation, as presented in the current form of (SAIC 2002d), although a more detailed discounted present value evaluation of the alternatives would be preferable. Business typically utilizes discounted cash flow economic models to more accurately predict the financial impacts, which may occur based upon specific courses of action. Commenter requests that these "bottom-line" type financial numbers, adequately supported in (SAIC 2002d), be included in language throughout the RMP-EIS. Commenter suggests that (SAIC 2002d) include discussion regarding a possible federal royalty reduction, and include a recommendation as to the amount of royalty reduction necessary to compensate for these burdens, as it relates to the added cost burden placed upon an oil and gas operator to develop surface stipulated or NSO well site locations associated with proposed new SMAs. This could be the foundation for future legislation that would promote oil and gas development throughout the United States.

Thomas Mullins, Synergy Operating, LLC

Response:

Bottom-line impacts are estimated in the EIS for each of the four alternatives. Total well costs and total production volume for each alternative are estimated in the text of the EIS under "Social and Economic Conditions" in Chapter 4. A summary with respect to economic consequences is incorporated in the discussion in Chapter 4 under "Cumulative Impacts – Social and Economic Conditions." The economic analysis presented in SAIC 2002d is intended to be a broad look at the economic feasibility of drilling directionally to the Mesaverde/Dakota. Variable used in the analysis are all subject to change, including discount, well life, operating cost, a lack of problems during drilling. All of these factors as well as the other variables described in SAIC 2002d have the ability to alter the results of the analysis somewhat. The change could be greater over the span of the RMP (20 years) than over a short-tern 5-year period. The goal of this analysis is to determine whether, generally speaking, if directional drilling is an economically feasible tool. Accumulating the data and performing the detailed analyses necessary to support future legislation is beyond the scope of the EIS.

Category: Economics

Comment:

Proposed new restrictions on oil and gas leasing would impact economic viability of operations. The EIS does not adequately describe what these impacts would have on jobs, revenues and local economy.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The proposed restrictions would have some cost and timing implications on new well development. Restrictions are needed to balance BLM's responsibility for managing both the productive value of resources required by our nation, and the environmental health of both the local area and nationally important or protected resources. If commenter had figured acreage instead of number of leases, the actual percentage of restrictions would be significantly lower.

Comment:

Page 1-9. Issue 1, Item 3 on this page calls upon the BLM to address the impact of management constraints on oil and gas development. The BLM should ensure that the Final RMP/EIS adequately addresses this issue with a more comprehensive discussion of the impact of the management constraints, including to the extent consistent with statutory and regulatory guidance, the economic impact of BLM constraints, and the ability to address those impacts on a case-by-case basis.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Without the specific site locations of new wells and roads, it would be impossible to be more comprehensive in the evaluation of economic impacts of BLM constraints than has already been done through the discussion of average costs for directional drilling, the value of gas that would not be produced due to NSO constraints, and other general economic analysis. Case-by-case impact analysis could only be done in EAs developed during the APD process.

Comment:

Change in air quality and visibility will affect the tourism industry.

Susan Rarick

Response:

BLM plans to work with a regional group to monitor air quality and develop mitigation measures so air quality and visibility will not decline.

Comment:

Good stewardship of the land serves economic diversity.

Heidi Rhoderick

Response:

Comment noted.

Comment:

The oil and gas industry is not a "primary" employer in the region.

Carolyn Dunmire, Ecos Consulting

Response:

Comment noted. EIS text modified to reflect relative importance of oil and gas industry employment. Even though other sectors such as government, services and retail support a greater percentage of jobs, the mining, tourism, and construction sectors provide diversification that make for a more resilient local economy.

Comment:

The EIS indicates that oil and gas production will remain a dominant economic force, yet other sectors are growing faster in the region.

Carolyn Dunmire, Ecos Consulting

Response:

Employment in other sectors are experiencing faster growth in employment to meet the needs of an expanding population. However, induced economic activity locally and revenues from oil and gas production are expected to remain important not only locally, but also for the State of New Mexico.

Comment:

The value or price of oil and gas determines the viability of production. The EIS should examine the viability of production resulting from costs associated with different types of drilling, and the consequential effect on unemployment.

Carolyn Dunmire, Ecos Consulting
John Zent, Burlington Resources – San Juan Division

Response:

Comment noted. A report on the relative costs of different drilling techniques was prepared as background for the EIS. The viability of production is dependent on multiple variable factors including the value of the product, costs to producers, and tax structure. A cost/benefit analysis for using different drilling technologies is beyond the scope of the EIS. Over the 20-year planning period, alternate technologies may be a factor in viability at certain points in time, causing delay in development of some resources. However, the overall effect on unemployment would be minimal, particularly when oil and gas industry jobs are only a small percent of the labor force. The RFDS presents a reasonable supply-driven scenario. Factors such as demand, price, cost to produce, tax structures, permit and approval process timing, can all affect the timing of development over the short- and long-term. It is likely that these factors will continue to affect production and there will be fluctuations in employment in the oil and gas industry as there has been in the past under all alternatives. Employment impacts are likely to be the greatest under Alternative A, and the least under Alternative B.

Comment:

Environmental protection activities could diversify, and thereby enhance our economy.

David Hamlow

Response:

Comment noted.

Comment:

The EIS does not include analysis of social effects on the community and families in relation to jobs under the different alternatives.

Jim Fitzgerald

Response:

The EIS notes that the local area has had a history of boom and bust cycles related to the oil and gas industry, and that oil and gas industry jobs tend to pay better than service-sector jobs, which are increasing at a faster rate. The EIS cannot predict the fluctuation in production over the next 20 years, but given the historic patterns, these are likely to continue. Increased diversity in the local economy, along with continuation of extractive industries, may provide some stability to the local job market providing for better standard of living.

Comment:

The economic impact and costs of long-term health effects may persist after resources are depleted and continue to affect communities.

Sherry Lynn McLaughlin

Response:

Comment noted. BLM is required to meet national and state air quality standards. These standards are designed to protect public health and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. BLM will work with the New Mexico Air Quality Bureau in implementing an air quality monitoring plan that is approved by the EPA as part of the decision on this RMP, to ensure compliance with the law and standards that protect public health. However, BLM does not do the monitoring; NMAQB is responsible for air monitoring.

Comment:

The value or price of oil and gas determines the viability of production. The EIS should examine the viability of production resulting from costs associated with different types of drilling, and the consequential effect on unemployment.

Donald DeCarlo, Devon Energy Corp.
Mark Pearson, San Juan Citizens Alliance

Response:

Comment noted. A report on the relative costs of different drilling techniques was prepared as background for the EIS. The viability of production is dependent on multiple variable factors including the value of the product, costs to producers, and tax structure. A cost/benefit analysis for using different drilling technologies is beyond the scope of the EIS. Over the 20-year planning period, alternate technologies may be a factor in viability at certain points in time, causing delay in development of some resources. However, the overall effect on unemployment would be minimal, particularly when oil and gas industry jobs are only a small percent of the labor force.

Comment:

Short-term surface disturbance acreage is inconsistent in different sections of the EIS.

Carolyn Dunmire, Ecos Consulting

Response:

Acreage has been corrected to accurately reflect Table 2-12.

Comment:

The EIS does not include an adequate level of analysis of potential economic impacts on employment, expenditures, and revenues to the local economy and tax revenues. The EIS does not adequately address the impact on viability of production, and potential employment impacts, from varying costs of alternate drilling technologies, and high and low oil and gas prices.

Carolyn Dunmire, Ecos Consulting
Bruce Policky, BP America Production Company

Response:

The EIS provides an approximate and relative assessment of employment under varying alternatives. The cost variations between using different drilling technologies is estimated to be relatively small compared to the total return from a well producing over 30 to 50 years. While these slight differences may affect timing of development, other factors have similar or greater effect on the viability of well development. Because oil field jobs represent less than 15 percent of jobs in the local area (San Juan County and Rio Arriba being most representative), effects from using alternate drilling techniques would not greatly influence employment or unemployment across all industrial sectors in the area. The EIS provides information to substantiate this conclusion. An analysis of the effects of varying oil and gas prices and costs of production on the viability of production is beyond the scope of the EIS.

Comment:

The EIS does not adequately address the impact on viability of production, and potential employment impacts, from varying costs of alternate drilling technologies, and high and low oil and gas prices.

Carolyn Dunmire, Ecos Consulting

Response:

Tax revenues are related to the price of oil and gas and tax policy (which may change). A multi-variable analysis of future tax revenues is beyond the scope of the EIS.

Comment:

EIS overstates cumulative impacts of oil and gas development on economics in the region.

Carolyn Dunmire, Ecos Consulting

Response:

Comment noted. The statement in the Draft EIS is erroneous. The text has been corrected in the FEIS.

Comment:

Changes in the noise and visual environment can reduce private property values.
Nora Flucke

Response:

Oil and gas development may affect the value of specific parcels of land, but overall, the economic benefit from the industry to the local area would tend to have a beneficial effect on property values. There are a variety of mechanisms that can be implemented at the local government level to protect landowners. These include, but are not limited to, ordinances controlling or setting standards for noise and aesthetics, or disclosures requirements in land transactions that warn buyers of potential actions that could affect their property. The DRMP does not apply to BLM lands or minerals in Colorado. The La Plata County Impact Report (La Plata Co. CO, Oct. 2002) presents an analysis of the impact of coalbed methane wells on property values near Durango. The analysis indicates that 12 properties, which actually contained wells, were reduced in value by approximately 22 percent. An additional 544 properties that were sold with wells nearby, but not actually on the property, saw an average reduction in value of $200 (less than 1 percent of appraised value). Discussions with appraisers in San Juan Co. NM, indicate that effects of oil and gas wells on appraised values of properties can be positive or negative and have to be considered on a case by case basis.

Comment:

Changes in the noise and visual environment can reduce private property values.
David and Pati Temple

Response:

Oil and gas development may affect the value of specific parcels of land, but overall, the economic benefit from the industry to the local area would tend to have a beneficial effect on property values. There are a variety of mechanisms that can be implemented at the local government level to protect landowners. These include, but are not limited to, ordinances controlling or setting standards for noise and aesthetics, or disclosures requirements in land transactions that warn buyers of potential actions that could affect their property.

Comment:

Why would jobs decline if the same number of new wells would be drilled?
Barbara Truby, Truby Ranch

Response:

The decline accounts for wells that would be plugged and abandoned, and therefore, no longer needing maintenance.

Comment:

The EIS does not provide a cost analysis of reimbursements for leases that would be terminated.
Travis Stills, Citizens Oil & Gas Support

Response:

The BLM is not proposing to terminate valid existing oil and gas leases.

Comment:

The EIS does not consider the economic effects on tourism from air quality degradation.
Wano Urbonas, San Juan Basin Health Department

Response:

BLM is required to meet national and state air quality standards. These standards are designed to protect public health and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. BLM will work with the New Mexico Air Quality Bureau in implementing an air quality monitoring plan that is approved by the EPA as part of the decision on this RMP, to ensure compliance with the law and standards that protect public health. If public health standards are maintained, there should be no effect on tourism.

Comment:

Page 2-235, Chart at top of page; this chart contains a summary of the different types of management prescriptions derived from the Implementation of the proposed SDAs. If one evaluates all closures, CSU, NSO, and timing limitations, almost 27 percent of the FFO will be subject to these restrictions. In regards to the timing limitations that comprise almost ½ of the more restrictive management directive, this would force operators into conducting operations in a compressed timeframe causing seasonal fluctuations for both equipment and manpower. We would recommend this be assessed to fully understand the ramifications of the constrained operational timeframe.

Donald DeCarlo, Devon Energy Corp.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Under Alternative D, approximately 2.6 million acres would be developed under STCs and 796,000 acres would be developed under CSU, NSO, and TL. The number of acres managed under restrictions consists of approximately 23 percent of the total. Approximately 60 percent of the acres managed under restrictions would be managed under TLs. The BLM understands that a greater amount of planning will be necessary to operate under these conditions. It should be remembered that TLs vary as to the natural resource that the restrictions are intended to protect. Not all TLs would occur concurrently.

Comment:

The EIS does not evaluate the economic impacts on San Juan County.

Gary Markestad, XTO Energy, Inc.

Response:

Oil and gas production in San Juan County provides tax revenues, and indirectly dispersements from federal royalties that benefit the county. One area that impacts the county budget is expenditures for road maintenance. The county prioritizes roads that serve residences and schools for maintenance work. The new San Juan Basin Roads Committee partnership is aimed at distributing costs for road maintenance more fairly between industry users and federal management. Similar agreements can be made with county managers.

Comment:

Additional information needed on costs of well drilling and economic multipliers used in the EIS.

Carolyn Dunmire, Ecos Consulting

Response:

The method and factors included in cost per new well drilling is described in a supporting technical document available for the BLM Farmington office. The EIS reference to the BLM 2000e was an error. The reference should have been to BLM 2000d. The Final EIS was corrected. The EIS addresses relative change in jobs, expenditures and revenues on a land use plan level for the San Juan Basin.

Comment:

The EIS overstates the economic impact of the RMP. The EIS does not adequately address the impact on viability of production, and potential employment impacts, from varying costs of alternate drilling technologies, and high and low oil and gas prices.

Carolyn Dunmire, Ecos Consulting

Response:

The EIS provides an approximate assessment of employment under varying alternatives. The cost variations between using different drilling technologies is estimated to be relatively small compared to the total return from a well producing over 30 to 50 years. While these slight differences may affect timing of development, other factors have similar or greater effect on the viability of well development. Oil field jobs represent about 2 to 6 percent of jobs in the local area (San Juan County and Rio Arriba being most representative). Alternate drilling may be needed on 1.3 percent of projected new wells under the Alternative c, and lower for other alternatives. At worst, this may represent between 5 and 10 fewer jobs in per year in the San Juan Basin region. An analysis of the effects of varying oil and gas prices and costs of production on the viability of production is beyond the scope of the EIS. Tax revenues are related to the price of oil and gas and tax policy (which may change). A multi-variable analysis of future tax revenues is beyond the scope of the EIS.

Comment:

The new development jobs in the EIS are based on estimates of years with high levels of development. A range of employment estimates is needed in the EIS.

Carolyn Dunmire, Ecos Consulting

Response:

Table 4-14 has been revised to reflect a range of current oil and gas jobs based on recent years with more or less development. Projected new employment, inclusive of ongoing maintenance jobs, and accounting for wells that would be plugged and abandoned have been provided in Table 4-14.

Comment:

The following economic information should be analyzed for each alternative: 1) Estimated time periods of viable oil and gas extraction (How long will it take to deplete resources under each alternative? This analysis is essential when discussing the most environmentally friendly alterative for this EIS). 2) Industry growth and revenue increases. 3) Property values and costs and expected increases or decreases. 4) Health care costs expected increases or decreases. 5) Analysis of costs of breaching industry contracts versus maintaining industry contacts should be included.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

The estimated time period of 20 years was described in the document and was derived from the RFDS. Information on industry growth and revenue increases and property values and costs and expected changes were determined to be so market dependent that a prediction over the 20-year planning period was determined too speculative to be useful. Insufficient data is available to provide any meaningful projection of effects on health care costs. A brief discussion of the cost of breaching industry leases is included in Chapter 2 of the PRMP/FEIS under Alternatives Considered but Not Analyzed in Detail.

Category: Environmental Justice

Comment:

Additional information on public health, particularly for respiratory illnesses, is needed in the EIS. Effects on minority and low-income populations from proposed restrictions on oil and gas development should be addressed. Effects on minority and low-income populations from proposed restrictions on oil and gas development should be addressed.

Janine Fitzgerald.
Wano Urbonas, San Juan Basin Health Department

Response:

BLM is required to meet national and state air quality standards. These standards are designed to protect public health and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. BLM will support additional NMAQB monitoring studies, will continue to participate in the Regional Ozone Taskforce and will implement EPA and NMAQB recommendations to ensure compliance with the law and standards that protect public health. In general, job creation is evaluated as a beneficial economic impact. The EIS acknowledges that there are and will likely continue to be fluctuations in oil and gas jobs. However, they tend to pay better on average than service and retail jobs in the area. Under Alternatives B, C, and D, job increases are projected that could benefit low-income and minorities to the same extent as the rest of the population and local economy. Case-by case mitigations for noise impacts are generally not borne by affected private parties.

Comment:

The EIS fails to address public health effects from oil and gas development and power plants in the Four Corners areas, particularly on minority communities.

Caren Cowan, NM Cattle Growers Association
Janine Fitzgerald

Response:

BLM is required to meet national and state air quality standards. These standards are designed to protect public health and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. NMAQB, EPA, BLM will implement an air quality monitoring plan that is approved by both EPA and NMAQB as part of the decision on this RMP, to ensure compliance with the law and standards that protect public health. Air Quality issues on the Navajo Reservation are administered from EPA Region IX and are outside the scope of this EIS.

Comment:

The EIS does not address the potential health affects from gas compressors on local communities and persons of minority and low-income status.

Wano Urbonas, San Juan Basin Health Department

Response:

BLM is required to meet national and state air quality standards. These standards are designed to protect the health of the entire public and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. BLM will work with the State of New Mexico Air Quality Bureau in implementing an air quality monitoring plan that is approved by the EPA as part of the decision on this RMP, to ensure compliance with the law and standards that protect public health.

Comment:

The EIS should discuss disproportionate health risks relative to Environmental Justice.

Wano Urbonas, San Juan Basin Health Department

Response:

BLM is required to meet national and state air quality standards. These standards are designed to protect the health of the entire public and to protect relate values in designated Prevention of Significant Deterioration (PSD) Class I areas. BLM will work with the State of New Mexico Air Quality Bureau in implementing an air quality monitoring plan that is approved by the EPA as part of the decision on this RMP, to ensure compliance with the law and standards that protect public health.

Comment:

The EIS did not address issues affecting low-income or minority individuals.
Jack Scott, City of Aztec

Response:

It is recognized in the EIS document and by BLM that the oil and gas industry has undergone cycles over the last 50 years. This type of pattern may continue in the future. On average, oil industry jobs are slightly higher paying than retail and service jobs in the area. The economy in the Four-Corners area has been diversifying, particularly with growth in tourism and services as the population increases. Diversification provides greater stability in the economy to offset other industries that may continue to be cyclic in nature. Development activities must meet all regulatory standards. Air quality will be monitored by BLM to identify non-conforming pollutant levels or trends in the San Juan Basin.

Comment:

The EIS does not address impacts on the Navajo population, particularly in light of its high proportion of children.
Richard Champany

Response:

All development must conform to existing standards and laws that are aimed at protecting human health and safety and the environment. BLM will monitor air quality levels to ensure that no standards are exceeded. Regional air quality issues are being examined by the NMED AQB through the Four Corners Ozone Task Force, with which the BLM is cooperating.

Category: Fire Management

Comment:

Page 3-59, Map 3-8, Fire Management Objectives, you list them as A and B, but nowhere in the book can I find what the definition of A and B and C are.

Barbara Truby, Truby Ranch

Response:

Areas A, B, and C are described in the document as identifying areas of varying fire management prescriptions and the reader is referred to the Fire Management Plan for details. Brief descriptions have been added to the PRMP/FEIS.

Category: Grazing

Comment:

Why are you closing some SDAs like Cibola Canyon and Truby's Tower to grazing. You do not say how you will acquire these lands.

Bill Humphries
Barbara Truby, Truby Ranch
Mary Beth Truby, Truby Ranch

Response:

Cibola Canyon ACEC is currently closed to grazing and no change has been recommended. Truby's Tower ACEC has been proposed as a new ACEC with half of the proposed boundary currently under BLM management. The other half is owned by the State of New Mexico. This ACEC is included in the total acreage listed for possible acquisition of inholdings under Land Ownership Adjustments for each alternative that would improve BLM's ability to manage public lands. Methods of land acquisition have been described on Page 2-5 of the Draft RMP/EIS under Continuing Management Guidance, Lands. The FFO has reviewed the management prescriptions for proposed and existing ACECs and agrees that management of several of these sites could be best accomplished by fencing impacted sites, through the grazing permit process, or via other statutory and regulatory authority. Table 2-5 will be modified to reflect these changes for the following SDAs: Albert Mesa, Cottonwood Divide, Hummingbird Canyon, Pork Chop Pass, Star Rock, String House, Truby's Tower, Cedar Hill, La Jara, Star Spring-Jesus Canyon, Crow Canyon, Farmers Arroyo, Largo Canyon Star Ceiling.

Comment:

The RMP/EIS should have discussed and quantified the impacts of grazing on recreation, wildlife, and the creation of SDAs. It should also provide detailed information on grazing land health and BLM plans for managing grazing lands. A summary of revenues to government entities from grazing should be presented to provide an understanding of its importance.

J.D. Barnett

Response:

The RMP/EIS incorporates by reference the Record of Decision for the Statewide RMP Amendments/EIS for Standards for Public Land Health and Guidelines for Livestock Grazing Management (BLM 2000a). This document provides the plans for managing grazing lands and the methodology for determining the health of the land. FFO staff are currently implementing these methods in an ongoing effort to evaluate the health of grazing lands that will help them manage allotments. The detailed data requested are not available at this time to quantify the impacts or to summarize revenues generated from BLM grazing allotments.

Comment:

Oil and gas development has removed a lot of forage. The reduction in forage for livestock and wildlife will increase as more wells are developed.

Chris Velasquez

Response:

Additional information estimating the number of AUMs that would be removed from grazing has been added to the PRMP/FEIS. The document acknowledges that mineral development decreases forage in grazing allotments. By presenting this information in the RMP/EIS, it will be considered by BLM management when developing the Record of Decision that selects the actions to be implemented.

Comment:

The Draft RMP/EIS does not give attention to grazing closures or to the impacts on grazing from recreational uses or oil and gas activity.

Cathy Truby, Truby Ranch

Response:

Grazing closures are used only in specific ACECs on limited acreage to minimize damage to significant cultural resources. The proposed status of grazing closures is documented for each SDA under each alternative in Table 2-5 of the Draft RMP/EIS. Impacts on vegetation from OHV cross-country travel and oil and gas development have been presented under each alternative throughout Chapter 4.

Comment:

The impacts from surface disturbance due to oil and gas development would affect grazing allotments as well as wildlife habitat. The Draft RMP/EIS minimizes the impacts to grazing allotments but the total acreage that would be damaged is more than the size of some ranches.

Barbara Truby, Truby Ranch

Response:

While forage removal would affect both wildlife and livestock, the impacts of habitat fragmentation on wildlife are greater because some wildlife species described in the document have been shown to be more susceptible to habitat disruption from fragmentation and vehicle traffic than livestock are. The total acreage presented in the document is sizeable, but because it is spread out over approximately 1.5 million acres, its impact is less than if it were concentrated in one area.

Comment:

Wait for the results of a study on the impacts of grazing on riparian areas before designating more areas. The impact of oil and gas development on grazing land varies with the location of the well and the quality of the forage.

Barbara Truby, Truby Ranch

Response:

The impacts of grazing on riparian areas have been documented in many studies, including some cited in the Draft RMP/EIS that have been completed on BLM lands. BLM has proposed to limit grazing in only a few riparian areas within the Ephemeral Wash Riparian Area under the Preferred Alternative (D). These limits would only be implemented where grazing closures are currently in place. Under River Tracts SDA, grazing would only be closed if permits are relinquished or cancelled under the Preferred Alternative. An average of 9 acres per AUM will be used in the PRMP/FEIS to provide a summary of the impact of surface disturbance due to oil and gas development.

Comment:

In the Summary, it only states that conflicts with ranchers and other users would continue. Without trying to address ranchers' concerns and resolve conflicts between ranchers and the oil and gas industry, the RMP and all of the alternatives are incomplete.

Barbara Truby, Truby Ranch

Response:

The Summary is intended only to summarize the impacts under each alternative, not the way to resolve conflicts. The impact analysis serves to identify potential impacts that would result under each alternative. Page 1-8 of the Draft RMP/EIS describes the way the 5 issues were identified. It also states that aspects of current management that are not covered by these 5 issues are addressed under Continuing Management Guidance. BLM recognizes that conflicts between grazing permittees and other land users is an ongoing problem. BLM has sought to resolve the issue through the formation of a working group of ranchers and industry representatives who seek to find cooperative solutions to conflicts.

Category: Human Health Risk

Comment:

BLM cannot in good conscience accept the portion of the EIS describing the formaldehyde production (4-61 to 4-63).
M. Theresa Fitzgerald

Response:

Additional discussion of formaldehyde and other HAPs has been added to Chapter 4 of the PRMP/FEIS.

Comment:

The resulting description of why the actions of the BLM would not exceed the amount of risk are without merit—based on such claims that the majority of the people in the U.S. do not live in the same place for more than 9 years, that in order to be fully exposed, they would have to stay home 24 hours a day—even though the pollutant would be over a range of space.

M. Theresa Fitzgerald
Barbara Truby, Truby Ranch

Response:

The referenced information on risk is taken from a description in the document of the method used by EPA to determine risk associated with the long-term incremental exposure to formaldehyde. It was not used to describe why BLM actions would not exceed risk. BLM will work with a regional interagency group that includes NMAQB and EPA to monitor air quality, determine sources of air pollution, and to develop appropriate mitigation measures for the region for those sources.

Category: Land Exchanges

Comment:

The EIS does not show which areas would be acquired by BLM.

Mark Pearson, San Juan Citizens Alliance
Jennifer Truby, Truby Ranch

Response:

BLM defines general areas where land acquisition would be a priority, but only from willing sellers. No specific parcels are identified in addition to those carried forward from the 1988 RMP.

Comment:

Commenter takes issue with how BLM is currently managing the lands they already have. Additional acquisition would exacerbate this.

Jennifer Truby, Truby Ranch
Barbara Truby, Truby Ranch

Response:

BLM only intends to acquire land that would consolidate land holdings, making management and enforcement more efficient. BLM would only acquire land from willing sellers.

Comment:

Additional information about lessee status for oil and gas, grazing, and coal should be identified for all disposal parcels.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

This information is available from the Farmington Field Office.

Comment:

Maps in the DEIS indicate that BLM plans to dispose of land with high potential for coal development.

Mark Pearson, San Juan Citizens Alliance

Response:

BLM will continue to make lands south of US 550 available for disposal or exchange. Any proposals would be reviewed on a case-by-case basis, and would be contingent upon honoring valid existing rights. BLM would not dispose of federal mineral rights.

Comment:

BLM's proposed disposal plan is not consistent with plans of other federal, state, and local entities.

Eric Aune, City of Aztec

Response:

The intention of selecting a zone for disposal of land in proximity to urban areas is to facilitate appropriate use and development of these areas for the public benefit. Disposals would be on a case-by-case basis and require a public input process. On any land disposal, BLM is required to review the future use of the property for consistency with plans and land use controls of any jurisdictional entities.

Comment:

BLM manages its lands for multiple use and for this reason, commenter favors expansion rather reduction of public land.

J.D. Barnett

Response:

Comment noted.

Comment:

BLM is proposing to reduce its land holdings over the next 20 years.
J.D. Barnett

Response:

Comment noted.

Comment:

Lands administered by USBR are governed by the RMP.
Gary Markestad, XTO Energy, Inc.

Response:

BLM controls the leasing of federal minerals underlying USBR land, but does not administer the surface estate, nor prepare the resource management plan for USBR lands.

Comment:

Page 1-10: The RMP/EIS discusses the possibility of land ownership adjustments including land exchanges. The BLM should confirm that the impacts of proposed land ownership adjustments on current oil and gas lessees will be addressed on a case-by-case basis.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Any decisions that would increase the amount of split estate would be made only if land transfers would benefit federal land and resource management. The stated acreage increases listed in Chapter 4 are the maximum possible if all SDAs were consolidated under federal management and all land exchanges proposed were to be carried out.

Category: Land Use

Comment:

Development of the Western Regional Corridor Study did not involve the public in its preparation. As such, the impacts of using this have not been addressed and it should not be used as a decision tool. Impacts on private lands should be evaluated.

Jack Scott, City of Aztec

Response:

BLM will consider this study when siting and reviewing applications for new ROWs in order to promote more ordered development of infrastructure. However, each future ROW application would be reviewed and undergo environmental assessment, including public participation, prior to decisions. Effects on private owners within proposed alignments would be part of this evaluation. BLM does not have a policy that would preferentially site new ROWs on private land.

Comment:

The EIS does not adequately evaluate impacts and restrictions on land uses on split estate lands from oil and gas development. For there should be provisions allowing private owners to have same protections apply to their lands as apply to federal surface estate.

Jack Scott, City of Aztec

Response:

Owners of private surface over federal minerals can negotiate a surface owner agreement with an oil and gas operator. If no agreement exists, BLM surface stipulations apply. In general an agreement between the operator and private landowner will take precedence over BLM surface stipulations. See Appendix G for exceptions and further details.

Comment:

The EIS needs to examine how BLM Farmington will comply with EO 13212 and the National Energy Policy. The EIS should evaluate whether the agency has internal resources to process the permitting load to meet these directives.

Douglas Campbell, PNM

Response:

The FFO is aware of EO 13212 and subsequent IM No. 2002-196 and these directives will be addressed in the FEIS. The FFO has in the past and will continue too utilize many ways to achieve these directives. Third-party contracting and Quality Assurance/Quality Control (QA/QC) programs will continue to be used to augment federal staffing in the processing of energy related projects. These programs expedite energy projects while allowing the proponent and the FFO to meet all environmental obligations.

Comment:

The EIS does not accurately illustrate existing major ROW corridors.

Douglas Campbell, PNM

Response:

The FEIS will be corrected with updated information provided to show the location of major energy corridors within and through the FFO. These existing and proposed corridors will be shown relative to the SDAs.

Comment:

The RMP/EIS does not adequately consider the energy effects as outlined in EO 13211 and in IM 2002-196, especially concerning the development of ROWs corridors for the purpose of energy retrieval.

Douglas Campbell, PNM

Response:

The FEIS has added a section expressly directed at complying with IM 2002-196. Specifically, this section will outline potential environmental issues that may limit and/or alter energy related corridors, in designated SDA areas. With the exception of one corridor, the recognized existing and potential corridors have capacity to accommodate future energy development within and across the FFO. As noted in this section, the designated SDAs are generally small in size and therefore easily routed around. Additionally, many of the SDA areas contain very rough terrain, necessitating avoidance.

Category: Mitigations

Comment:

The discussion of oil and gas leasing and development should recognize the impact of the voluntary offsite mitigation funded by the oil and gas industry.

Bruce Policky, BP America Production Company
John Zent, Burlington Resources – San Juan Division

Response:

The voluntary contributions made by industry to offset the loss of forage associated with roads and those portions of well locations that are not revegetated will help mitigate the effects of habitat fragmentation. However, the effects of increased human activity and avoidance by wildlife will still be a problem.

Comment:

BLM should consider the costs to industry in implementing mitigations based on the RMP/EIS.

David Wacker, Conoco, Inc.

Response:

Comment noted.

Comment:

I urge you to take steps in your plans to reduce the impact on not only air quality, but also wildlife, and open space.

Jean Weiskotten

Response:

BLM believes that denial of oil and gas lease development is not a reasonable alternative. A variation of this alternative has been added to Chapter 2 under the subtitle, “Alternatives Eliminated from Detailed Analysis.” BLM does not believe it has the right to so drastically limit access to existing lease rights without compensating the lessees, which would result in huge payouts by the BLM.

Comment:

Throughout the Southwest we are experiencing record drought conditions. The negative impact of this drought should be acknowledged in these documents. Negative impacts of all land disturbances will be exacerbated because of poor moisture conditions. A futuristic planning document would recognize the realities of these conditions and develop management strategies to address them.

Len Carpenter, Wildlife Management Institute

Response:

BLM policies and guidelines allow for management decisions related to seasonal and climatic variations to be made as needed to protect resources. These cannot be predicted in this long-term, land use planning document with any success. However, some proposed changes under the Preferred Alternative and some of the impact analyses take into account the arid conditions and slow rehabilitation of vegetation and soils in this arid climate. For example, limits on cross-country travel by OHVs are substantiated by the susceptibility of soil biological crusts and the local vegetation to damage from vehicular traffic and the long recovery time in arid climates.

Comment:

I think the draft plan shortchanges concerns about invasive weed management and wild fire management. Both of these issues are huge and demand serious future planning to minimize detrimental impacts to all resources. The invasive weed issue is exacerbated with the proposed increases in land disturbances and the ongoing drought.

Len Carpenter, Wildlife Management Institute

Response:

BLM has acknowledged the potential spread of invasive weeds due to increased surface disturbance and vehicle traffic, but believes that this would be addressed by implementation of monitoring and required weed management plans. Fire management is addressed by the development of an annual Fire Management Plan that is referenced in the document.

Comment:

It is important to reseed pipelines and well pads and to bring disturbed forage up to standards.

Janet Rees Chris Velasquez

Response:

Current BLM policies and COAs provide guidelines for reseeding. Additional staff that have recently been moved to the FFO will help enforce these requirements.

Comment:

A ½-mile buffer zone of no surface occupancy along the rivers should be established. Use directional drilling to access the oil and gas in these areas.

Ken Stanley

Response:

Limits are would be placed on oil and gas development within specific SDAs under the Preferred Alternative. The proposed Ephemeral Wash SDA includes no surface occupancy within the active floodplain. Other areas of public land along rivers would be constrained under controlled surface use, which allows well pads to be moved within the drilling window to protect surface resources. It is not technically feasible to expect that all formations along rivers could be accessed from ½ mile away.

Comment:

Continue the voluntary fund for offsite mitigation that uses contributions from industry to replace forage as part of the agreement to drill 10,000 new wells.

Paul Bandy

Response:

The description of the Preferred Alternative includes the funding from the oil and gas industry (Page 2-235) to monitor surface natural and cultural resources, meet public land health standards, and other mitigation and management measures. If this alternative is selected, the fund would be continued.

Comment:

I know the FFO has sponsored work with birds and noise but suggest that more needs to be done. What do we know about noise and other wildlife?

Janet Rees

Response:

Studies on the effect of noise on birds and other wildlife have been conducted but results are not clear cut other than that related to raptors. The new Noise Policy has been proposed to address the impact of noise on people. The raptor noise policy is limited to noise mitigation in the vicinity of raptor nests.

Comment:

IPAMS encourages the BLM to remove the voluntary offsite mitigation program from the final draft.

Grant Melvin, Independent Petroleum Association of Mountain States

Response:

The description of the Preferred Alternative includes the funding from the oil and gas industry (Page 2-235) to monitor surface natural and cultural resources, meet public land health standards, and other mitigation and management measures. If this alternative is selected, the fund would be continued.

Comment:

Mitigation measures have not been clearly addressed in the document. Please dedicate a section in the FEIS specifically addressing all mitigation measures.

Jan Holt
Robert Lawrence, Environmental Protection Agency
Bruce Policky, BP America Production Company
Ed Stevens
Bill Theimer

Response:

The PRMP/FEIS has been modified to include a section on mitigation and monitoring to bring together all of the mitigation measures referenced in the document and to more fully address this concern.

Comment:

Pages 2-235-236. The paragraph on "Offsite Mitigation" should be amended to recognize the voluntary nature of the program. In addition, the RMP/EIS should reflect that 70 percent of the voluntary funds are to be utilized for Range Land Health. Page 2-236. Consistent with statutory and regulatory guidance, the first full paragraph on Page 2-236 should reflect that economic considerations should be evaluated in determining what mitigation measures to employ.

John Zent, Burlington Resources – San Juan Division

Response:

Comment is noted.

Comment:

Commenter recommends adding, "Under specific conditions and depending upon economic viability, while at the same time consistent with statutory and regulatory guidance, the oil and gas operators and transporters may consider these or other mitigation measures that may be appropriate and effective on a case-by-case basis."

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Comment is noted. Mitigation measures are typically designed to meet site-specific conditions according to agency guidelines. Implementation may be required by law and do not necessarily depend on economic viability but must be feasible and effective.

Comment:

Page 4-100. In the interest of economic viability for oil and gas developers, commenter recommends replacing the final sentence of the "Specially Designated Areas" with, "Due to possible NSO constraints within SDAs, 12 wells would remain undeveloped due to the limitations of current technology. In addition, the development of 87 wells may be economically unfeasible if directional drilling is the only mitigation measure available. Industry and BLM will endeavor to utilize the best economically available technology to protect the SDAs and NSO areas."

Gary Markestad, XTO Energy, Inc.

Response:

Comment is noted.

Comment:

I do wish well sites could be smaller, roads narrower, and new sites could be chosen more carefully, and placed out of grasslands more often. I'd like to see more positive results from reseeding.

Cathy Truby, Truby Ranch

Response:

The PRMP/FEIS has been modified to include a section on mitigation and monitoring to bring together all of the mitigation measures referenced in the document and to more fully address this concern. Current BLM policies and COAs provide guidelines for reseeding. Additional staff that have recently been moved to the FFO will help enforce these requirements.

Comment:

Summary 7: The riparian area discussion, as found in other sections, does little to present mitigative efforts that exist for disturbance in riparian areas. While the BLM should play a role in managing these resources, it is the Corps of Engineers that regulates activities in these areas. There is no mention of the Corps in this section, nor best management practices, which can mitigate impacts to these areas.

Bruce Policky, BP America Production Company

Response:

The Summary is intended only to summarize the impacts under each alternative. The PRMP/FEIS has been modified to include a section on mitigation and monitoring to bring together all of the mitigation measures referenced in the document. The Corps only regulates some waters of the US and would not have the responsibility for implementing management practices in all riparian areas.

Comment:

We urge you to amend the EIS to include both reduction and monitoring of ozone, and a reduction in the number of roads and drilling sites. The latter could at least partly be accomplished by directional drilling.

Chris and Patty Isensee

Response:

Information has been added to the PRMP/FEIS to state that BLM will work with a regional interagency group that includes NMAQB and EPA to monitor air quality, determine sources of air pollution, and to develop appropriate mitigation measures for the region for those sources. BLM does not believe that it can reduce roads and well pads further by adding more NSO constraints that would require directional drilling. Mitigation measures will be used to minimize impacts to surface resources.

Comment:

All wells should be sound-proofed.

Jan Holt

Response:

BLM has worked with industry and other groups to develop the proposed Noise Policy. It is not economically feasible nor environmentally necessary to require that all wells employ noise mitigation.

Comment:

Hold strict emissions standards to minimize environmental impacts.

David Peters

Response:

Information has been added to the PRMP/FEIS to state that BLM will work with a regional interagency group that includes NMAQB and EPA to monitor air quality, determine sources of air pollution, and to develop appropriate mitigation measures for the region for those sources.

Comment:

BLM should use currently available standards for BMPs and allow industry to design them to meet the needs of each site in order to minimize erosion and sedimentation. BLM does not need to duplicate the design and enforcement responsibilities of other agencies like EPA or NMED.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

BLM has no intention of developing new BMPs to be used for this region. BLM standards and guidelines are based on those already in use by other agencies to comply with the Clean Water Act, for example. Since each site requires specific designs, detailed and specific BMPs have not been prescribed in this document. The general types of BMPs that would be expected to be used have been listed in the new mitigation section in Chapter 4. Enforcement of the implementation of erosion and sediment controls and other BMPs may be the responsibility of the BLM if the surface disturbing activities occur on public land because, as stated in Chapter 2 under Continuing Management Guidance, actions on public land must comply with state and federal regulations.

Comment:

There is no reference in the RMP to ensure adequate monitoring of cultural ACECs for site degradation from resource extraction, OHV use, or livestock.

Forest Guardians

Response:

Monitoring of impacts to cultural resources is an ongoing function of the FFO cultural resources management program, as described under Continuing Management Guidance Pages 2-14 through 2-21 of the DRMP/EIS.

Comment:

All of the alternatives would result in the destruction of too many archaeological sites.

W. James Judge

Response:

Avoidance of significant archaeological sites is the preferred method of mitigation. During the APD process, all sites would be required to undergo site-specific archaeological clearances and would be moved to avoid significant sites if possible. The number of archaeological sites that would be mitigated under each alternative is a broad prediction based on site density and distribution to provide a means of comparing impacts. Once mitigation measures and site-specific reviews are conducted, compliance with federal policy and regulations would limit the amount of sites undergoing damage.

Comment:

Roads and OHV traffic are particularly destructive when they are adjacent to streams, wetlands, or riparian areas. The DEIS acknowledges that such effects will occur but does not described how they would be mitigated. Adverse impacts are much greater than what is estimated from a simple calculation of the area directly impacted.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

Under the Preferred Alternative, management prescriptions are proposed that would limit surface disturbance and OHV traffic in River Tracts and other riparian areas. The potential direct and indirect adverse effects are described under several sections, including Watersheds, Soils, and Water Resources. A new section describing mitigation measures has been added to Chapter 4 in the PRMP/FEIS.

Category: NEPA Procedures

Comment:

The Draft RMP/EIS does not provide government officials or the public with a full understanding of the environmental consequences of the RMP, and thus it fails to meet the intent of the National Environmental Policy Act (NEPA), as provided in 40 CFR. §§ 1500-1508. 40 CFR. § 1500.1(c) states that the "NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." If the BLM finalizes this Draft RMP, its actions will not protect, restore, or enhance air quality. In fact, the BLM's current analysis, which is not even complete, shows the RMP will allow air quality to significantly degrade. Since the BLM prefers to take this action in spite of the environmental consequences, it is extremely important that the Draft RMP/EIS include a thorough and adequate analysis of the significant air quality impacts that will likely occur as a result of the RMP, so other governmental officials and the public will have the information.

Mark Pearson, San Juan Citizens Alliance

Response:

Corrections and additions have been made to this FEIS document. All of the impact areas mentioned in this comment have been addressed for each alternative in this FEIS.

Comment:

The high development area for oil and gas should be an SDA that allows for access to national energy resources.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

BLM is evaluating a range of SDA delineations for special resources throughout the high development area. Without creating one encompassing SDA, BLM is attempting to balance access to oil and gas resources while providing protection of multiple resources with special value. In addition to the National Energy Plan and policy, BLM is responsible for managing public lands and assets in compliance with many laws that protect a range of public interests, including the environment.

Comment:

Page 5-7: Under Table 5.2, List of Draft Recipients, why wasn't the Colorado Air Pollution Control Division included?

Wano Urbonas, San Juan Basin Health Department

Response:

All agencies and people who were involved initially in public scoping were on the original list, in addition to many names and agencies from all agencies directly involved. The Notice of Intent and the Notice of Availability were published in local newspapers and the Federal Register to inform those interested parties of the project and the document. There was no intent to leave any agency off the list.

Comment:

Any effort at coordination with partner agencies is lacking documentation; for example, input from USFS, USNPS, States of NM and CO, adjacent counties and tribal areas, would have been appropriate. The RMP/EIS document shows no awareness of the WRAP (Western Regional Air Partnership), of which the state of NM is a member, nor its targets for reduction in air pollution (see CFR 209). Anecdotal evidence suggests that significant entities were not even copied (in) the Draft RMP/EIS.

B. Brooks Taylor

Response:

Page 1-6 of the Draft RMP/EIS describes the interdisciplinary team composed of staff from BLM, USFS, and USBR that assisted in preparing the document. While the focus in on BLM surface, the cooperating agencies provided input into the development of the alternatives and management guidance related to oil and gas development on lands they manage. NMED/Air Quality Bureau reviewed and approved the draft protocol for air quality modeling before analysis was conducted. The initial mailing list receiving a newsletter about the project contained approximately 1600 names of individuals and agencies, in addition to the tribes that were consulted.

Comment:

The law requires this to be a basin-wide EIS. The law requires that there be a cumulative impact statement, the law requires that the scope of the NEPA document match the scope of the project. The law requires a lot of things that are just absolutely missing from this.

Mark Pearson, San Juan Citizens Alliance
Travis Stills, Citizens Oil & Gas Support

Response:

Potential cumulative damages have been quantified to the extent possible with available information in Chapter 4. A combination of methods, including modeling based on assumptions in the document, GIS, and other recent documents were used. The new wells, miles of new roads, and acres of surface disturbance projected for each watershed if all federal and non-federal minerals were to be developed were quantified. Other impacts were mainly qualitative due to the land use plan level nature of the document, the large size of the planning area, and the availability of data. The different timeframes and schedules for the Southern Ute Indian EIS and the Northern San Juan Basin EIS, made it impractical to develop a basin-wide EIS. The issues involved with Oil and Gas development in the Colorado portion of the San Juan Basin, particularly those dealing with surface management, are sufficiently different from those in the FFO, that a basin-wide EIS would not provide the focused analysis needed to understand oil and gas development options. The Farmington RMP is a land use plan revision that encompasses and analyzes issues broader than just oil and gas development. Information from the Southern Ute Indian EIS was considered in the development of the Farmington DRMP/EIS and incorporated as appropriate. The Carson National Forest EIS is just getting underway and will incorporate the information from this document.

Comment:

Once the basin-wide EIS has been completed, any future site-specific EAs should be nominal, if required at all, and should be allowed to reference the EIS for broad range issues. Further, any cost associated with complying with NEPA requirements, which are the responsibility of a surface management agency and paid for by the industry (such as an EA or archeological survey, etc.), should be reimbursed.

Gary Brink, Energen Resources Corporation

Response:

While it may be appropriate to tier off this EIS when developing EAs for siting new wells, it may not always be the case. As stated under Chapter 2, Continuing Management Guidance, site-specific EAs will still be required during the APD process. No decision will be made through this NEPA analysis and development of the RMP to address cost reimbursement.

Comment:

The BLM's representative has provided information to the group about the BLM's study of the correlation between sediment loading of the rivers, and erosion caused by well pads, and oil and gas service roads on the BLM lands. The BLM knows the existing problems with the community's water supply, and representatives have said they believe existing oil and gas activities on BLM lands may be a primary source of these problems. Why does the RMP not include a comprehensive consultation with the NMED and the EPA on this matter?

Evert Oldham

Response:

Comprehensive consultation with NMED and EPA are not required under BLM policy, including FLPMA and NEPA. BLM policies, standards, guidelines, and COAs, as well as the previous land use management documents carried forward, provide guidance for the design and implementation of BMPs to minimize erosion and sedimentation. A section on mitigation measures has been added to the PRMP/FEIS.

Comment:

The DEIS team should not have assumed that a simple compilation of potential adverse impacts meets their responsibilities for responsible environmental decision-making. The purpose of an EIS is to assess the potential for adverse impacts of a proposed project, to explore possible means of mitigation, and to draw a conclusion that is consistent with the analyses conducted. In the present case, the responsibilities of the BLM are to propose only those actions that are consistent with their environmental stewardship responsibilities.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

BLM responsibilities are for multiple use management of public lands. The purpose of an EIS is to assess the potential for significant impacts, not just adverse impacts, and to inform federal decision-makers before they make a decision on a proposed action. The federal agency must, in the Record of Decision, describe how the findings of the EIS were incorporated into the agency's decision-making process, but selection of an alternative that is environmentally preferable is not required.

Comment:

BLM's disregard for the adverse air quality effects is at odds with the policy of NEPA and FLPMA. BLM's own planning criteria, as stated in the Draft RMP/EIS, that actions must comply with Federal laws and regulations.

Vicki Stamper, William and Flora Hewlett Foundation

Response:

Agreed. BLM has no intent to violate air quality standards or any other law or regulation. The air quality modeling completed for the RMP/EIS was done in the interest of establishing the most severe impacts for which mitigation measures have been proposed. The BLM and AQB are fully aware of the implications of this potentially significant cumulative air quality impact and have therefore agreed to commit the resources necessary to fully understand and mitigate the problem to the maximum extent feasible. The AQB in particular will be continuously monitoring the ozone degradation situation, as part of their mandate is to not allow nonattainment of the air quality standards.

Comment:

The National Park Service does not appear to have been included in initial public scoping and would like to participate in future scoping and planning efforts in the BLM Farmington Field Office area.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

While at least one representative of the National Park Service was included in the early mailing lists for the newsletter, some others were not. This was an oversight and the agency will be included in future lists for agency participation by the FFO.

Category: Noise

Comment:

Noise from compressors and other equipment associated with gas wells is too loud and inescapable. Compressors with no noise control are installed near houses. Oil and gas companies are too big and powerful, and need to learn to live with the expanding population and shrinking environment.

Charlene Anderson
Glenn Beiter
Michael Carrell
Nora Flucke
Mark and Alice Freitag
David Hamlow
Paul Lerno
Laurie Martinez
Warren and Shirley McNall
Denise Nicholas
Susan Rarick
Janet Rees
Heidi Rhoderick
Ken Stanley
Ed Stevens
Richard White, Farmington Public Library

Response:

The BLM proposes two distinct NTLs that address the management of sound generated by oil and gas production and transportation. The NTLs analyzed in Alternatives C and D and contain identical provisions for industrial uses involving Indian and federal leases located near occupied dwellings or buildings. The provisions set limits on allowable noise levels 100 feet from such a structure.

Comment:

The NNTL includes several SDAs in which motorized travel or other significant sound producing activities are a primary SMA management goal. Proposal 9: Eliminate these SDAs from the NNTL.

W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Donald DeCarlo, Devon Energy Corp.
Deborah Seligman, NM Oil and Gas Association
E. Randall West, El Paso Field Services Co

Response:

SDAs set aside primarily for motorized use (The Dunes Vehicle Recreation Area, Head Canyon, Rock Garden and the open OHV area in the Glade Run Recreation Area) are not considered noise sensitive areas.

Comment:

Establish usage criteria for all NSAs using a cost-benefit analysis. If an ACEC is not fenced, stabilized, and interpreted, it should not be included in the NTL. There would be no bona fide receptors unless such improvements are made.

Donald DeCarlo, Devon Energy Corp.
W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

The BLM has broadly assessed usage criteria for its proposed NSAs and has identified receptor focused and boundary focused NSAs in accordance with its usage determination. Public document PB-239-429 developed by the EPA addresses noise levels as they affect human health and safety. The BLM considers other aspects that may apply to noise level criteria, as described in the proposed noise NTL. "The BLM recognizes solitude (lack or limited sound) as a part of the natural environment that needs protection…"The lack of fences, stabilization, and interpretive material associated with a cultural resource site does not necessarily reflect adversely on the importance of the site. Although they have not yet received interpretive treatment, historic sites ACECs, such as Dogie School and the Martinez Homestead ACEC have been previously identified for interpretive use. Stabilization assessments and protective treatments are ongoing at these and other cultural SDAs. Others may, however, use the site for which the value of an undistracted site visit would be of value, although not in a measurable way. These persons would be considered "bona fide" receptors. The BLM is not required to perform a cost benefit analysis when assessing the value inherent to resources that it is obligated to manage. In addition, it is not possible to quantify the effects of noise reduction upon the occupants of a house or a person walking down a trail. The imposition of a 48.6 BA standard is equivalent to a level of noise somewhat less than that of quiet urban daytime noise or light traffic noise measured at 100 feet, which is approximated by a level of 50 dBA (U.S. National Park Service 2002). The BLM expects that this level of noise would allow oil and gas operations to proceed but would not be excessively distracting to a site visitor.

Comment:

The proposed noise standards are not site-specific and do not allow for variance in local geography, existing sound levels, and local atmospheric conditions.

Gary Brink, Energen Resources Corporation
Donald DeCarlo, Devon Energy Corp.
W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

Upon implementation of the NTL, affected operators in or adjacent to NSAs will be provided general ownership maps depicting the NSAs. Detailed descriptions of the NSAs will be maintained and available at local administrative agency offices. The standards do not preclude topographic variations and local atmospheric conditions that may decrease the noise level perceived by a receptor at a specific location. It may be necessary to measure existing sound levels prior to the installation of a compressor so that it may be shown that the incremental amount of noise perceived at a location is less than the standard.

Comment:

All areas that are closed to public use, where public use is not encouraged, which have not been designated as SMAs, or do not belong to the Federal government should be eliminated from the listing of NSAs in the NNTL.

Donald DeCarlo, Devon Energy Corp.
W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

The SDAs described in the comment as being closed to public use are not, in fact, closed to the public. The lack of encouragement of public use certainly does not reflect active discouragement. Certain uses have been prohibited, such as oil and gas development, grazing, salable minerals extraction, fuelwood cutting, and OHV use. Other uses, such as hiking, are permitted. There are inholdings of privately owned surface in some of the referenced areas. In order to more proactively manage the resources within its boundaries, if these lands are made available for sale or exchange by willing sellers, the BLM will attempt to acquire as much of the private holdings as necessary to protect the cultural resources.

Comment:

Noise levels measured at zero feet from a receptor are measured too close. A 400-foot offset from the noise source should be the required minimum from a receptor.

Donald DeCarlo, Devon Energy Corp.
W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.

Response:

BLM has designated some habitats for threatened or endangered wildlife under Alternative D (Preferred Alternative) as receptor-based noise sensitive areas. Noise mitigation in these areas will be developed on a site-specific basis in coordination between BLM, USFWS, and industry as appropriate to insure that habitat suitability for threatened or endangered wildlife species is not negatively impacted.

Comment:

Many NSAs were selected and designated to shield plants and animals from oil field noise without identifying any harm caused by the noise. Eliminate SMAs created for protection of plant or animal habitat from the NNTL until such time as objective scientific data are developed showing harm to plants and animals from the levels of noise generated by oil and gas activities. The BLM has presented no evidence that the current level of noise is harmful to roosting eagles and no cost/benefit analysis for the proposed noise standard.

Donald DeCarlo, Devon Energy Corp.
W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

BLM has not designated any NSAs for the protection of plants. BLM has designated some habitats for threatened or endangered wildlife under Alternative D (Preferred Alternative) as receptor-based noise sensitive areas. Noise mitigation in these areas will be developed on a site-specific basis in coordination between BLM, USFWS, and industry as appropriate to insure that habitat suitability for threatened or endangered wildlife species is not negatively impacted. BLM is not required to perform a cost benefit analysis when assessing the value inherent to resources that it is obligated to manage.

Comment:

There appear to be inconsistencies in compliance time requirements for existing noise sources in the Draft NTL. Section V. Application of Standards within NSAs, states that new NSAs may be identified and/or developed by the land management agencies, and that "this policy" would apply with a 30-day notice to affected parties. Section VI., Implementation of NTL, allows 5 years to demonstrate compliance for existing sources. Section V. (should be VII.), Procedures, allows 60 days for compliance. The 5-year compliance window for existing sources seems reasonable in contrast to the overly stringent and unrealistic 30- and 60-day compliance requirements.

E. Randall West, El Paso Field Services Co

Response:

Section V in the noise NTL describes the 30-day notification requirement for the BLM to the public after the designation of a new SMA with noise restrictions or newly designated receptors. Section VI describes the 5-year time limit for compliance applicable to existing noise sources within NSAs. Section VII describes the timeframe for providing noise level measurements (60 days). Implementation of the standards would occur according to the procedures in Section VI. Thus, an existing source would be informed that in 30 days a newly designated NSA would be implemented that would affect that source. At that time, the source would need to supply sound level measurements within 60 days. The standard for a particular source and a time frame (up to 5 yrs.) for achieving compliance would then be determined. The source would have 5 years in which to achieve compliance.

Comment:

The Draft NTL requires that the Farmington BLM be provided with "noise measurements within 24 hours of the unit being put into operation or as otherwise agreed to." That is an extremely stringent requirement that seems unnecessary. We suggest that a 2-week reporting timeframe would be more reasonable.

E. Randall West, El Paso Field Services Co

Response:

The 24-hour time limit applies to the noise NTL associated with Alternative C. The time frame applies only to those areas where noise impacts are of extreme concern and where stricter standards may be required (e.g. campgrounds). In keeping with the tighter environmental guidelines associated with this alternative, it would be incumbent on the operator to include the procedures associated with the applicable noise NTL into its preplanning requirements. The proposed NTL allows some leeway such that if the procedures cannot be reasonably accomplished, a request for variance can be submitted to the BLM.

Comment:

In several places, the Draft NTL says that the sound level must equal 48.6 dBA over a continuous 24-hour period. Obviously the intention must be that the levels should be equal to or below 48.6 dBA.

E. Randall West, El Paso Field Services Co

Response:

The comment is correct.

Comment:

The Draft NTL states that "variances may be granted on a case-by-case basis by the AO." We support Farmington BLM in its recognition that there may be situations where deviation from an established noise limit is appropriate. However, we urge Farmington BLM to clarify that, in such situations, either a more lenient or a more stringent noise limit may be appropriate. In addition, we urge Farmington BLM to articulate clear standards for the granting of such a variance. Such standards would allow operators to budget properly for projects and evaluate their economic feasibility where noise mitigation is anticipated.

E. Randall West, El Paso Field Services Co

Response:

The BLM acknowledges that the request for a clear articulation of criteria for variances reflects a valid concern; however, there are many circumstances that may affect the BLM's decision to grant a variance. These circumstances are impossible to determine before a location for a noise source is proposed. A prudent course of action would be for an operator to enter discussions with the BLM as soon as it is suspected that a source may have difficulty in meeting the requirements of the NTL. It may be possible to make this determination before the noise source is installed so that funds are not spent unnecessarily and a mutually agreeable solution is reached.

Comment:

The Draft NTL fails to include Appendix A, containing the list of NSAs, and Appendix B, containing the survey protocol. In order to understand exactly how the Draft NTL will apply, it is essential to review the list of NSAs, which will further specify the areas where receptor-based, boundary-based and "stricter" standards will apply.

Donald DeCarlo, Devon Energy Corp. *Deborah Seligman, NM Oil and Gas Association*
Gary Markestad, XTO Energy, Inc. *E. Randall West, El Paso Field Services Co*
Mark Pearson, San Juan Citizens Alliance

Response:

The BLM will issue a complete noise NTL that includes all relevant information after a decision is made with respect to this EIS. The EIS contains a list of SMAs in Chapter 2. If noise restrictions exist or are proposed for a specific area, the noise restrictions are identified in Table 2-5. (See text change to documents in Appendix E).

Comment:

Unless the case can be made that the entire area within particular boundaries qualifies as a human receptor point, we do not believe that the boundary-based approach is appropriate. Applying noise limits at a circular boundary may be unnecessarily onerous if no human receptors are likely in the vicinity.

Leslie Davis *Bruce Policky, BP America Production Company*
Gary Markestad, XTO Energy, Inc. *Deborah Seligman, NM Oil and Gas Association*
Grant Melvin, Independent Petroleum Association of Mountain States *E. Randall West, El Paso Field Services Co*
John Zent, Burlington Resources – San Juan Division

Response:

Alternative D lists 7 boundary-focused NSAs in the FFO. These areas have either been designated through previous land use plans or by Congress. They are currently managed for a variety of different uses including primitive, non-motorized forms of recreation, the protection of natural landscapes (including natural sounds) and opportunities for solitude, and important Native American Traditional and Sacred uses. Each one of these areas receives use by human receptors. However, these areas contain no developed trails and use is not concentrated in any one particular area. Visitors are allowed and encouraged to travel where they desire within the boundaries of these NSAs. Since sound travels in more than one direction, applying mitigation in only one direction in these areas would be of little use. It should be noted that four-out-of-seven boundary-focused NSAs currently have little or no oil and gas development within their boundaries.

Comment:

The receptor-focused noise guidelines effectively and practically manage noise levels.

Donald DeCarlo, Devon Energy Corp. *Deborah Seligman, NM Oil and Gas Association*
Gary Markestad, XTO Energy, Inc. *E. Randall West, El Paso Field Services Co*

Response:

The comment is noted. In areas where boundary-focused NSAs may be a more appropriate method with which to manage noise, the BLM retains this option in the noise NTL associated with Alternative D. Such areas may include those that do not contain identifiable receptors but where noise control is necessary to maintain natural resource values.

Comment:

The Federal Regulatory Commission standard, which is the source of the 48.6 dBA standard in the Draft NTL, applies at buildings occupied by people rather than at areas outside these buildings. We believe that compliance with the standard at buildings is also sufficiently protective of areas immediately around these buildings. Further, a compliance point of 100 feet, or any specified distance, from a building will often result in an off-property compliance point due to the variability of setbacks of building from property lines.

E. Randall West, El Paso Field Services Co

Response:

The BLM acknowledges that a point of compliance located 100 feet away from a structure may be outside of the property boundary upon which a building is located. The objective of this portion of the NTL is to allow people to enjoy a quiet environment. The BLM realizes that meeting the standard at 100 ft. away from the structure may still diminish the quality of life for some.

Comment:

Issue 8: The noise policy requires compliance of "noise sources involving Federal or Indian leases located near occupied dwellings or buildings" is vague and overly broad, and as written, could apply anywhere. This phrase in the NNTL appears to be a mechanism whereby the BLM is attempting to exert jurisdiction over state and private lands via Federal and Indian mineral leases. This is both unnecessary and undesirable. Proposal 8: Limit the policy to Federally owned surfaces. There are sufficient private individuals as well as county, state, and municipal governments to oversee and regulate non-Federal surface issues.

W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

This provision of the noise NTL exerts BLM authority over sources of noise that emanate from its leases, federal or Indian. It is intended to exert some level of control over the operations for which the BLM has authority. Not all municipalities, counties, and states promulgate noise ordinances or regulations. In cases where more stringent restrictions apply, the BLM will subjugate the restrictions contained its noise NTL to the regulating authority.

Comment:

Appendix E.1. Page E-5. Introduction: Recognizing the current Raptor Noise Policy, Commenter recommends removing the following words, "...habitat for threatened and endangered species...." from the final sentence in the introduction.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.

Response:

The Raptor Policy only deals with 3 species of concern. The inclusion of wildlife habitat in the NTL allows the BLM to manage areas for species of concern. It allows the BLM to manage noise generated by human encroachment or industrial operations that may adversely affect species of concern.

Comment:

The comments suggest definitions to be used in the noise NTL.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.

Response:

The comment is noted.

Comment:

Noise pollution that was created by your Preferred Alternative.

Michael Carrell

Response:

The comment is noted.

Comment:

Greater study also needs to be conducted on the health impacts of increased noise pollution on wildlife and residents in the affected area.

Leslie Barnhart

Response:

The comment addresses issues that are beyond the scope of this EIS. Research into this area is presumably ongoing.

Comment:

We also recommend the PA be supplemented to allow for a more flexible approach to the existing requirement of advance notice and approval prior to installation of a new compressor.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.

Response:

The NTL for Alternative D only requires prior approval before setting a noise source that could affect the Threatened or Endangered Species and Raptor NSAs. Approval will be expedited to the extent possible. The BLM understands the need for installation of compressors to maintain production levels and will work with operators so that the necessary requirements are met in a timeframe that allows the production level to be maintained.

Comment:

The approach of the noise mitigation measures in Alternative D is the first time a receptor-based approach has been considered by the BLM-FFO. Unfortunately, the receptors are only loosely defined, and there is no criteria given to show that BLM has quantified the impact on costs on existing and future compression. It is also unclear what the impact of added NSAs is on noise mitigation, because key parts of the NTL are missing from the document (Appendix A). The Draft NTL specifies compliance at a distance of 400 feet from the source, which is an which is an improvement over the previous 300 feet.

John Zent, Burlington Resources – San Juan Division

Response:

Monitoring would be carried out to ascertain the success of the policy. The receptors will be more clearly defined before the policy is implemented. Currently receptor points are only generally identified within each SDA. Detailed descriptions of the NSAs will be maintained and available at local administering agency offices. Appendix A, referenced in the Draft NTLs included the names of areas which would be designated NSAs, the resource they are associated with, and which NSAs would possibly require stricter standards. This information can be found in Table 2-5. The text of the document has been changed to refer the reader to Table 2-5.

Comment:

The present raptor noise policy is problematic in requiring either advanced approval of setting a well-site compressor or meeting a 48.6 dB standard in 360-degree. A more reasonable policy is to allow the operator to file an advanced notice of setting such compressors and then for BLM to get with the operator and establish a "receptor-based" control strategy upfront of the compressor installation. Furthermore, it also seems reasonable to allow for a 30-day time period to install these controls rather than the current requirement of prior to any operation.

John Zent, Burlington Resources – San Juan Division

Response:

The raptor noise policy is brought forward as continuing management guidance and is not under consideration to be changed under any of the alternatives. It has been assumed to be constant under all alternatives and cannot be modified in the Final EIS or the RMP.

Comment:

Existing noise sources should not be required to meet the noise standards set by the proposed Noise Policy.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

In order to address concerns voiced by the public during the scoping period and at other times, the BLM has responded by developing the proposed policy that would require noise mitigation on existing and new compressors. The BLM does plan to allow more time for compliance with the standard for existing compressors.

Comment:

The definition of receptors should be more narrowly defined as "residences, churches, public buildings, established campgrounds, and historic sites that are frequently occupied and visited." Others must be justified before being designated.

John Zent, Burlington Resources – San Juan Division

Response:

The majority of the receptors and NSAs meet the recommended definition. Others are those that would protect raptors and T&E species habitat in compliance with state and federal laws. It is appropriate to be conservative in minimizing impacts to the ecosystem, then monitor to determine the success of the mitigation measures.

Comment:

Establish usage criteria for all NSAs using a cost-benefit analysis. If an ACEC is not fenced, stabilized, and interpreted, it should not be included in the NNTL. There would be no bona fide receptors unless such improvements are made.

John Zent, Burlington Resources – San Juan Division

Response:

BLM has designated some habitats for threatened or endangered wildlife under Alternative D (Preferred Alternative) as receptor-based noise sensitive areas. Noise mitigation in these areas will be developed on a site-specific basis in coordination between BLM, USFWS, and industry as appropriate to insure that habitat suitability for threatened or endangered wildlife species is not negatively impacted.

Comment:

The proposed noise standards are not site-specific and do not allow for variance in local geography, high existing sound levels, and local atmospheric conditions. Were existing sound levels to exceed the proposed standard of 48.6 dBA, that a reasonable allowance should be 3 dB above prevailing background sound levels. Furthermore, the NTL should be clear and exclude other factors that might influence sound levels such as wind direction, weather, and intermittent background sources such as traffic and aircraft. In other words, the compressor operator should only have to meet the standard under normal conditions, and where other conditions outside of the operator's control adversely affect the noise levels, the BLM policy should be accommodative of an alternative noise standard.

John Zent, Burlington Resources – San Juan Division

Response:

The proposed noise standards would be applied at or near the site-specific locations identified in the Noise Policy. Local geography or topography and atmospheric conditions would be taken into account in the field when determining the noise levels within 400 feet of the source, to evaluate the level of noise mitigation needed. In some areas with significant background noise, it may be necessary to monitor noise levels before and after installation of compressors to help determine the level of mitigation required. Background noise that is intermittent would not be a factor as the Noise Policy is applied.

Comment:

The noise policy requiring compliance of "noise sources involving Federal or Indian leases located near occupied dwellings or buildings" is vague and overly broad, and as written, could apply anywhere. The policy should be limited to Federally-owned surface acreage. There are sufficient county, state, and municipal governments to oversee and regulate non-Federal surface issues. Comments on Proposed Noise NTL under Alternative C: BLM's proposed NTL under Alternative C, as currently written, would apply: a) To every square inch of area within an NSA, irrespective of whether or not there are established receptors being impacted; b) Within a 300-foot radius of any new or existing noise source within an NSA, irrespective of any impact to established receptors. The commenter strongly disagrees with this arbitrary and unscientific basis for establishing the need for noise control, and compliments the BLM-FFO for recognizing the adequacy of science behind the FERC standard of Ldn = 55 dBA, which is equivalent to a continuous 24-hour sound level of 48.6 dBA. However, commenter vigorously disagrees with the arbitrary imposition of this level at a 300-foot radius irrespective of any receptor being present. The FERC standard referred to, above as well as other guidelines (e.g., EPA's 1974 guidelines and FICUN guidelines as referenced in our September 28, 2000, comments), are all "receptor-based" standards and in our opinion should become the basis for any BLM-FFO NTL regarding noise. Another significant issue is the tremendous cost difference that will result by implementing noise controls sufficient to meet NTL noise standard on a 300-foot radius, versus by implementing noise controls only in the direction and at the distance needed. As covered in our September 28, 2000, comments, a small compressor location with a 4-sided barrier with access doors would cost in the vicinity of $10,000 - $20,000 per location. Assuming a single receptor at 300 feet, the cost would be approximately 25 percent of this cost, or $2,500 - $5,000. On the other hand, if there is no receptor closer than 500 feet, then it is quite probable that no controls would be needed, resulting in no cost at all. The costs become dramatically higher with large compressor engines. Based on experience in the field with 500 - 1000 horsepower units, the costs run in the neighborhood of $60,000 - $100,000 per installation if a 4-sided barrier is needed to control to the NTL noise standard at 300 feet. Assuming a single receptor at 300 feet, the cost would drop to approximately $10,000 - $20,000. On the other hand, if there were only one receptor at 500 feet, then the cost would drop to $5,000 - $10,000. It seems to us that there are enormous cost penalties for this arbitrary application of the 48.6 dB (A) standard at 300 feet.

John Zent, Burlington Resources – San Juan Division

Response:

BLM has some responsibility for wells extracting federal minerals wherever they are located. The Noise Policy specifies the distance from dwellings and the maximum decibel level. Surface owners may also establish their own constraints for wells on their land. Because of public concerns and BLM's obligation under law to manage for resource protection, the noise policy was drafted. Alternative C focused on boundary-based NSAs where more stringent controls would be applied. The proposed NSAs were not arbitrarily or capriciously designated. They are based on SDAs that were designated in previous plans or Wilderness areas designated by Congress. They receive use by human receptors and are managed for a variety of uses including primitive, non-motorized forms of recreation, the protection of natural landscapes (including natural sounds) and opportunities for solitude, and important Native American Traditional uses. Many of these areas do not contain developed trails and uses is not concentrated in a single area. Visitors are allowed and encouraged to travel where they desire within the boundaries of the these NSAs.

Comment:

Please make sure that any noise control mandates be economically feasible to avoid driving up the price of energy.

J.D. Barnett

Response:

The costs would vary with the location of the well pad. Standard mitigation equipment is available for wellhead compressors.

Comment:

The BLM has totally ignored such persistent, common, and annoying sources of noise as jet skis and powerboats on Navajo Lake, airplanes and helicopters in the air, and motorcycles and OHVs on land. Please include these noise sources in your sound control measures in the RMP.

J.D. Barnett

Response:

Temporary and short-term noise sources do not require mitigation under the proposed Noise Policy. However, this does not preclude development in the future for mitigating temporary and short-term noise sources in order to address future public concerns.

Comment:

Pages Summary 13-14. In the discussion regarding noise (sound pressure level) and recreation, the agency assumes that there will be an additional 12,200 wellhead compressors and 319 larger compressors. Although we acknowledge there will likely be an increase in compressors under the PA, we cannot establish that the increase will be as large as estimated in the RMP/EIS.

Gary Markestad, XTO Energy, Inc.

Response:

These numbers were presented to summarize the number of compressors anticipated under each alternative when applying the assumptions stated in the document. The assumption, based on information from the RFDS, was that there would be one compressor for every 2 wells by the end of the planning period. This is presented as a conservative estimate that provides a basis for analysis.

Comment:

It is difficult to follow and understand the RMP/EIS's discussion on Noise (sound pressure level).

Gary Markestad, XTO Energy, Inc.

Response:

Comment is noted.

Comment:

The term "noise" is subjective and should be replaced with the term "sound pressure level" to be technically correct. Sound pressure levels can be measured, while noise cannot be measured.

Gary Markestad, XTO Energy, Inc.

Response:

Noise is the generic term that is understandable for non-technical people. As long as the definition and implementation of the policy is clear, the terms should be understandable.

Comment:

We cannot fully evaluate the analysis regarding sound pressure level due to the lack of identification of certain receptors, and the failure to quantify the economic impacts on existing and future compression.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

The site-specific locations will be designated and published before the Noise Policy is implemented. For the level of analysis in this land use plan document, it was determined that designation of the general areas of impact would be adequate.

Comment:

The increase in compressors has been overstated in the RMP/EIS.

Deborah Seligman, NM Oil and Gas Association

Response:

The numbers used in the Draft RMP/EIS are based on the RFDS, which derived its information from historic trends and input from industry. It is the best information available for use as the basis for analysis over the 20-year planning period.

Comment:

Pages 2-236-237: It is difficult to follow the RMP/EIS's discussion on Noise.

Deborah Seligman, NM Oil and Gas Association

Response:

Comment is noted.

Comment:

A better definition of receptor is needed in the Noise Policy.

Deborah Seligman, NM Oil and Gas Association

Response:

A broad definition of receptor in the Noise Policy is provided as examples including “visitor use areas, camp or picnic areas, habitat for T&E species, archaeological sites, and recreation trails.” Specific locations will be publicized as needed by the BLM according to the procedures stated in the policy.

Comment:

The first paragraph on Page E-7 requires that new noise sources must meet the new standard within 60 days from the date the source is set in the field. All major renovation and replaced noise sources must also meet the standard within 60 days. While this is an improvement from 30 days in the previously issued NTL, 90 days are needed in order to complete the sound evaluation, have noise walls/barriers ordered and built, and have installation completed.

Bruce Policky, BP America Production Company

Response:

The proposed NTL allows some leeway such that if the procedures cannot be reasonably accomplished, a request for variance can be submitted to the BLM.

Comment:

Page E-7: V. Procedures: Section "V. Procedures" should be renumbered: "VI. Procedures."

Deborah Seligman, NM Oil and Gas Association

Response:

Comment is noted. See text change.

Comment:

The BLM should not use a noise level standard that is more stringent than generally accepted guidelines, less than 50 dBA, which is the standard in Farmington and Colorado.

W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The noise standard is passed on a FERC standard of 55 Ldn dB(A), which is equivalent to a continuous 24 hour sound level of 48.6 dB(A). The imposition of a 48.6 BA standard is equivalent to a level of noise somewhat less than that of quiet urban daytime noise or light traffic noise measured at 100 feet, which is approximated by a level of 50 dBA (U.S. National Park Service 2002). The BLM expects that this level of noise would allow oil and gas operations to proceed but would not be excessively distracting to a site visitor.

Comment:

The RMP/EIS should specify that new NSAs can only be established after the agency goes through an EA process.

Deborah Seligman, NM Oil and Gas Association

Response:

An environmental assessment is needed when impacts to the environment may occur as a result of federal actions. It may provide a mechanism for identifying and developing appropriate mitigation measures. Since the mitigation measures would be established during this EIS, an EA would not be required. Procedures have been described in the proposed policy for establishing new NSAs. Reductions in impacts to the environment, such as those that would result from additional noise mitigation, would not be required to undergo the NEPA process before implementation, as long as the process has been evaluated and selected in the Record of Decision.

Comment:

The fact that some birds may adapt to compressor noise refutes the contention that wildlife is disturbed by oil and gas operations.

Thomas Mullins, Synergy Operating, LLC

Response:

While it may be true that some birds adapt to noise and traffic, it has been established that some wildlife important to the FFO area are sensitive to oil and gas operations, as pointed out in the Draft RMP/EIS and the Biological Technical Report. The NSAs have been delineated primarily to address the effect of noise on people, raptors, species of concern, not for all wildlife.

Comment:

I am concerned about all the noise.

Bill Day
Alicia Malone
Laura Pilewski
Dave Rich
Susan Wible

Response:

In order to address concerns voiced by the public during the scoping period and at other times, the BLM has responded by developing the proposed policy that would require noise mitigation on existing and new noise sources generated by oil and gas production and transportation.

Comment:

Operation of compressors in numbers and densities proposed are alarming for noise as well as exhaust gas pollution.

David Weingarten, NM Wildlife Federation

Response:

The Noise Policy and the BLM assisting the NMAQB in monitoring and mitigation of air quality would be carried out under the Preferred Alternative.

Comment:

Application of a noise standard should be the last choice, and considered only after all means to work with the affected homeowners to address their concerns have been exhausted. In some areas, background noise already exceeds the standard.

Bruce Policky, BP America Production Company

Response:

In order to address concerns voiced by the public during the scoping period and at other times, the BLM has responded by developing the proposed policy that would require noise mitigation on existing and new compressors. There is some leeway in the policy for exceptions to the policy, but, due to the established noise issues and negative effects of constant noise on people, the BLM believes that it is important to establish these standards. It is important from an enforcement standpoint to have clearly designated locations and uniform noise standards.

Comment:

An existing oil and gas operation should not be required to meet a noise standard when new occupied dwellings are constructed nearby. Recommend that compressors constructed before a nearby dwelling not be required to mitigate noise levels to meet the standard.

Bruce Policky, BP America Production Company

Response:

Due to the established health risks of constant noise in and near a home that exceeds the proposed standard, BLM has a responsibility to protect the human environment. The proposed Noise Policy would be implemented for noise sources involving federal or Indian leases located near occupied dwellings or buildings, regardless when the building or noise source was constructed.

Comment:

From many, if not all, of the archaeological sites including rock art, pueblitos, historic sites and Anasazi sites, there is a constant sound of oil and gas production activities. Compressors, pump jacks or construction/drilling activities are a constant sound. I recommend that you make more effort to establish a more stringent noise policy and require state of art technology be used to reduce noise at the source.

Glenna Barnes

Response:

The proposed noise policy includes receptors or boundaries for many archaeological sites to address the need for solitude at sites that are used by the public. Some of these would have more stringent noise policy requirements, as noted in Appendix E and Table 2-5 in the Proposed RMP/Final EIS.

Category: OHV Use

Comment:

A detailed study of the FFO is needed that identifies the specific areas and acreages that are in need of protection before any changes in the current designations are proposed. Reduction of the acreage managed under an open designation and any changes in current designation should be based on facts and not on assumptions.

Derek Cooper
D. Keith Jones, Sun Country Cycles
Ed Stevens

Response:

The proposed alternative divides the FFO into 13 OHV management units. Each unit has been given a "limited" designation. Inventory and analysis will be done in the OHV activity plans, to be completed after the RMP is finalized. Public participation during this process will be critical to the completion of each of the OHV activity plans. Appendix I: OHV Management explains the process that will be used in implementing area designations for the OHV management units. It further defines the criteria that will be used to define trails, routes, and areas in each of the management units. The long-term goal is that OHV use would occur on designated routes and in intensive use areas to provide a variety of motorized and nonmotorized recreation opportunities. In the interim period before designation of travel routes and areas can be accomplished, it is desirable to take the first step and limit unrestricted cross-country travel. Over the past twenty years extensive research has been done on the effects of OHV use. We have added a bibliography in Appendix I: OHV Management, detailing some of the past and current scientific studies on OHV effects and conflicts.

Comment:

OHV use should be strictly limited due to excessive damage to natural and cultural resources, and user conflicts.

Glenn Beiter
Michael Robinson, NM Wilderness Alliance

Response:

The BLM recognizes that OHV use is a valid recreational activity when properly managed. Managing this use along with other recreation uses and the need to protect natural and cultural resources has become increasingly more difficult with increased public demands. We recognize the need to minimize user conflicts and protect resources. We are proposing moving from an open to limited OHV designation to address these issues. The proposed alternative divides the FFO into 13 OHV management units. Each unit has been given a “limited” designation. Inventory and analysis will be done in the OHV activity plans, to be completed after the RMP is finalized. Public participation during this process will be critical to the completion of each of the OHV activity plans. Appendix I: OHV Management explains the process that will be used in implementing area designations for the OHV management units. It further defines the criteria that will be used to define trails, routes, and areas in each of the management units.

Comment:

The BLM has not addressed the methods that will be used to mitigate the documented OHV impacts in the RMP.

Michael Robinson, NM Wilderness Alliance

Response:

We recognize the need to minimize user conflicts and protect resources. We are proposing moving from an open to limited OHV designation to address these issues. The proposed alternative divides the FFO into 13 OHV management units. Each unit has been given a “limited” designation. Inventory and analysis will be done in the OHV activity plans, to be completed after the RMP is finalized. Public participation during this process will be critical to the completion of each of the OHV activity plans. Appendix I: OHV Management explains the process that will be used in implementing area designations for the OHV management units. It further defines the criteria that will be used to define trails, routes, and areas in each of the management units.

Comment:

The RMP/EIS needs an inventory of the existing OHV trails.

Dale Hoover, San Juan Trail Riders
Ken and Corki Willyard

Response:

We have included in the Preferred Alternative 95 miles of trail identified by the local user groups in the initial scoping. We realize that there are numerous existing trails and routes that have not been identified. These trails and routes will be inventoried and analyzed for suitability during the preparation of the OHV activity plans. Existing trails as defined on Page 2-24 are conditionally considered to be a designated route until they are inventoried and analyzed in the OHV activity plans. The proposed alternative divides the FFO into 13 OHV management units. Each unit has been given a "limited" designation. Inventory and analysis will be done in the OHV activity plans, to be completed after the RMP is finalized. Public participation during this process will be critical to the completion of each of the OHV activity plans . . . Appendix I: OHV Management explains the process that will be used in implementing area designations for the OHV management units. It further defines the criteria that will be used to define trails, routes, and areas in each of the management units.

Comment:

There should not be a "closed unless posted open" designation for the FFO.

Dale Hoover, San Juan Trail Riders

Response:

The BLM is not proposing a "closed unless posted open" designation. We are proposing a "limited" designation for the dispersed area of the FFO. Final delineation of trails, routes and areas will be done when the activity plans are completed for each of the OHV management units. See Page 2-219-2-223 for further clarification. Also Appendix I.

Comment:

More information is needed to show what and how cross-country travel impacts the environment before BLM makes major changes to OHV designations. Limiting the open OHV designation throughout the FFO is unnecessary. Effort should be spent on education and research before taking this action. BLM should use an environmental education program to gain compliance before limiting OHV use.

Brad Ullrich, Off Road Committee

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed. BLM will evaluate both OHV needs and environmental protection in consideration. Environmental education is just one of the tools the BLM will use to gain compliance or mitigate impacts. It should be noted that environmental education will only work in the long-term and is not a quick fix to the problem of resource damage and user conflict.

Comment:

BLM does not have the authority to make such an extensive change in OHV designation from "open" to "limited".

Brad Ullrich, Off Road Committee

Response:

BLM is required by regulation to apply OHV designations to all public lands during the planning process.

Comment:

The RMP assumes that there is conflict between the various users of public lands in the FFO. There is no specific information to support these assumptions. This is not a reason to limit OHV access.

Ed Stevens

Response:

BLM has noted an increase in user conflicts over the last ten years as the population has increased and there are more people out recreating on public lands. BLM has the responsibility to manage the public lands for the protection of the resources, the promotion of safety and the minimization of conflicts among various uses. Appendix I contains a list of studies on OHV effects and on user conflicts in a recreational setting.

Comment:

Will the 'limited' designation prohibit the identification and use of new trails in the future?

Jen McFarland

Response:

Moving to a limited designation will not prohibit the designation of new trails in the future. The long-term goal is that OHV use would occur on designated routes and in intensive use areas to provide a variety of motorized and nonmotorized recreation opportunities. This will be accomplished within the site-specific activity plans for the 13 OHV management units. Any future trails would be required to have the proper environmental and cultural clearances.

Comment:

Reducing the acreage of "open" designation from 1.2 million acres to 4600 acres.

Derek Cooper
Brad Ullrich, Off Road Committee

Response:

The 4600 acres of "open" designation only includes the acreage designated as "open" within SDAs. The long-term goal is that OHV use would occur on designated routes and in intensive use areas to provide a variety of motorized and nonmotorized recreation opportunities. This will be accomplished within the site-specific activity plans for the 13 OHV management units. A "limited" designation does not preclude identifying areas suitable for OHV "open" designation.

Comment:

Additional information is needed that demonstrates open OHV uses conflict with other users and resource protection. A major change in designation requires further study of the issues, problems and effectiveness of mitigation measures before being decided. Changing the "open" designation on 1.2 million acres (99.4 percent of the FFO) is too much. Covered above.

Brad Ullrich, Off Road Committee
Ken and Corki Willyard

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed. BLM will evaluate both OHV needs and environmental protection in consideration of conditions in each Management Unit.

Comment:

The document is in error in stating that unlimited cross-country travel results in an increase in vandalism.

Brad Ullrich, Off Road Committee

Response:

See Text change on 4-33.

Comment:

The document does not appear to address OHV impacts for resources other than upland vegetation.

Michael Robinson, NM Wilderness Alliance

Response:

The criteria presented are preliminary and not definitive. Different criteria may be used based on resource and user needs, and public input. Criteria may be different for each OHV Management Unit during development of specific area plans. Impacts from OHV use are listed by Alternative (A, B, C, D) for the following resources: soils, water resources, air quality, upland vegetation, riparian areas and wetlands, special status species, fisheries and wildlife, wilderness, rangeland, lands and access, visual resources, cultural resources, paleontology, and noise. See Index for reference to appropriate page.

Comment:

There is growing demand for roads, trails, ways, and other transportation routes for recreation. These are often user maintained and should not be viewed as a burden to maintain.

Terry Rust, Southwest Four Wheel Drive Association

Response:

BLM supports the use of maintained and designated roads, trails, ways and other routes for recreation. Expansion of the trail system is proposed. BLM will continue to work with local groups who provide valued partnerships in maintaining and policing many areas.

Comment:

Clarify the definition of the "limited" category for OHV use. What does "priority of needs and the amount of public use" mean in determining which OHV management areas will be the highest priority for plan completion? How will OHV use be managed during the 15 years it will take to complete all of the plans?

Mark Pearson, San Juan Citizens Alliance

Response:

A definition of the "limited" category for OHV use can be found on Page 2-23. Existing trails as defined on Page 2-24 under the category of motorized travel is not considered cross-country, are conditionally considered to be a designated route until they are inventoried and analyzed in the OHV activity plans. See Appendix I for the factors that will influence the priority in which the plans will be completed for the various OHV management units. The guidance for how OHV use will be managed during the interim while the OHV management plans are prepared can be found on Page 2-24.

Comment:

OHV access to camping locations should be limited to 50 feet off of roads. A 300-foot limit essentially allows unlimited OHV use in this zone and is not accounted for in the Table 2-2.

J.D. Barnett

Response:

It is correct that the 300-foot zone was not included in Table 2-2. The 300-foot exception is only for the shortest and most direct route to a camping location and does not apply to general cross-country travel. Due to the heavy industrial use and extensive road network camping has not been a major factor in cross-country travel, except around Navajo Lake which is managed by BOR. Should this become a major issue in the future, we would reexamine this exception.

Comment:

The document appears to indicate that no oil and gas roads would be closed until the transportation plans are completed. BLM has insufficient resources (manpower, budget, and equipment) to enforce the "limited" restrictions, even if the OHV Management Plans are ever written.

Mark Pearson, San Juan Citizens Alliance

Response:

A resource roads is a low volume single lane road, which may be reclaimed after a particular use terminates. They are located on the basis of the specific resource activity need rather than travel efficiency. Most oil and gas roads fall into this category and current regulations require that they be closed and reclaimed once activity ceases. BLM collector roads are usually double-laned and graded, serve large land areas, and are the major access routes into development areas with high average daily traffic rates. They usually connect with public highways or other arterials to form a network of primary travel routes and are operated for long-term land and resource management purposes. These routes would be identified in the Transportation Plan for long-term use. BLM is required by law to do land use planning and does not make land use decisions based on what the budget and staffing is or might be in the future.

Comment:

The BLM should reopen those areas that were previously closed to OHV use.

Terry Rust, Southwest Four Wheel Drive Association

Response:

All previous closures and/or limitations were established in order to protect resources and values from damage. These closures and/or limitations were done through environmental analysis as required by NEPA.

Comment:

The RMP needs to reduce or eliminate OHV use from riparian areas altogether if the BLM is to attain the goal of reducing impaired water quality.

Michael Robinson, NM Wilderness Alliance

Response:

OHV use in BLM identified riparian areas will be restricted. See OHV management prescriptions for the Ephemeral Wash and River Tract SDAs. See also the explanation of cross-country travel in dry washes on Pg. 2-24.

Comment:

Mountain bike use should be encouraged because it causes less impact.

J.D. Barnett

Response:

OHV activity plans will consider all types of off-road recreational use including mountain bike usage.

Comment:

Will it be possible to add additional trails in the future without doing another EIS.

Jen McFarland

Response:

Generally new trails can be approved without an EIS. However, an environmental assessment would be required before any new trail could be approved. The proposed alternative divides the FFO into 13 OHV management units. Each unit has been given a "limited" designation. Inventory and analysis will be done in the OHV activity plans, to be completed after the RMP is finalized. Public participation during this process will be critical to the completion of each of the OHV activity plans. Appendix I: OHV Management explains the process that will be used in implementing area designations for the OHV management units. It further defines the criteria that will be used to define trails, routes, and areas in each of the management units.

Comment:

OHV use should be prohibited in dry washes due to resource impacts.

Michael Robinson, NM Wilderness Alliance

Response:

Travel in dry washes would be prohibited in areas where resource concerns such as riparian areas, wetlands, springs, vegetation, and wildlife, would result in negative impacts.

Comment:

The EIS should clarify that mountain bikes are not considered "mechanized" vehicles.

J.D. Barnett

Response:

Mountain bikes are not considered to be an OHV or a motorized vehicle. However, they are considered to be a mechanized method of transportation.

Comment:

Assumptions were made to eliminate the open designation for OHVs even though there are no facts to back up their effects on wildlife.

Brad Ullrich, Off Road Committee

Response:

Impact assessment under biological resources in Chapter 4 clearly discusses the effects of traffic on roads on certain types of wildlife. This would apply to OHVs as well as other vehicles. Other impacts caused by OHVs are described under Soils in Chapter 3, under watersheds, water resources, and cultural resources, among others.

Comment:

There is little or no factual information to back up the claims of damage by OHVs. It is very rare that damages to the land occur.

Derek Cooper
Ed Stevens
Brad Ullrich, Off Road Committee

Response:

Under Soils in Chapter 3, there is a discussion of the importance of soil biological crusts and an explanation of how they are damaged by vehicular and other traffic. An excellent reference is Technical Reference 1730-2 Biological Soil Crusts: Ecology and Management from the BLM and USGS (2001). Another is called Taken for a Ride; How Off-Road Vehicles Damage the Nation's Wildest Lands, A report from the National Off-Road Vehicle Coalition, which states "In 1979, the White House Council on Environmental Quality concluded that off-road vehicles have damaged every kind of ecosystem found in the United States." These references have been added to the citations in the text. Information documenting the local impacts of OHVs was obtained from BLM staff.

Comment:

Before any change is made to the OHV use designations in the FFO, I am requesting that a complete study of FFO lands be made with specific areas identified for public review that should be protected. Until then, there should be absolutely no change in the current OHV management policy in the FFO.

Derek Cooper
Brad Ullrich, Off Road Committee

Response:

BLM has a responsibility to protect natural and cultural resources. The long-term goal is that OHV use would occur on designated routes and in intensive use areas to provide a variety of motorized and nonmotorized recreation opportunities. In the interim period, before designation of travel routes and areas can be accomplished, it is desirable to take the first step and limit unrestricted cross-country travel.

Comment:

One of the principles under which the Resource Advisory Council (RAC) recommendations were developed is that, until a suitable inventory of roads and trails can be developed, routes are limited to EXISTING roads and trails. (There is provision for closing routes when environmental damage requires it.) The designation of seven trails, with others promised during the next 15 years, is not consistent with effective multiple-use of public lands in the Farmington Field Office. The required inventory can be done with the help from the users of the public lands. The New Mexico Wilderness Alliance believes it has a suitable inventory. The four-wheel drive clubs using these lands would be happy to devote effort to such an inventory. Surely, between these two groups, there is a means for completing an inventory in less than the 15 years envisioned.

Philip Kennicott

Response:

The proposed trails have been included because they have been identified by members of the public and evaluated by BLM staff. Existing trails, as defined on Page 2-24, are conditionally considered to be designated routes until they are inventoried and analyzed for suitability during the preparation of the OHV activity plans. The Draft RMP/EIS states that the development of all the OHV activity plans, not the inventory, would be accomplished over the next 15 years. The activity plans must be completed by BLM staff, but appropriate information may be useful from outside sources.

Comment:

Commenter favors limiting OHV use because of the environmental damage and user conflicts that result from these activities.

J.D. Barnett

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed.

Comment:

More public education is needed for the small number of OHV users who are causing damage by their activities.
Brad Ullrich, Off Road Committee

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed.

Comment:

Motorized cross-country and trail competitions generate revenues for the local area.
Jen McFarland

Response:

Comment noted.

Comment:

Enforcing OHV restrictions will be difficult.
Charlene Anderson

Response:

Comment noted.

Comment:

Commenter favors limiting OHV use because of the environmental damage and user conflicts that result from these activities.
Michael Robinson, NM Wilderness Alliance

Response:

Comment noted. The acreage for OHV designations in the RMP is derived from a set of preliminary screening criteria (such as soil type, slope) to identify areas that may be suitable or unsuitable for cross-country travel. The Field Office proposes an Activity Plan level process to identify areas that would be open or closed to cross-country travel and could adopt a "Closed Unless Posted Open" policy in different Management Units. Additional public input would be part of the process for defining policies and restrictions in the 13 OHV management units.

Comment:

Commenter favors limiting OHV use because of the environmental damage and user conflicts that result from these activities.
Heidi Rhoderick

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed.

Comment:

Commenter favors limiting OHV use because of the environmental damage and user conflicts that result from these activities.
David Hamlow

Response:

Comment noted. The public will have opportunities for further input to designations as the OHV Management Unit Plans are developed.

Category: Oil and Gas Development

Comment:

Each affected operator needs to know if NSO stipulations would affect their particular leases.

Thomas Mullins, Synergy Operating, LLC
John Roe, Dugan Production Corporation

Response:

Information about specific leases and operators is available from the BLM. The EIS evaluates impacts more generally rather than at the lease-specific level. Table 2-5 lists the leasing constraints for specially designated areas in the FFO. Large fold out maps in the back of the document show general boundaries and locations of each SDA for each alternative.

Comment:

Proposed closure of 81,000 acres to new oil and gas leasing could represent a loss of royalties and access to needed oil and gas resources. These areas are not shown in the EIS document. Proposed new restrictions on oil and gas leasing would impact economic viability of operations. The EIS does not adequately describe what these impacts would have on jobs, revenues and local economy.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Location of unleased acreage is available in the FFO. The proposed restrictions would have some cost and timing implications on new well development. Restrictions are needed to balance BLM's responsibility for managing both the productive value of resources required by our nation, and the environmental health of both the local area and nationally important or protected resources.

Comment:

If the shallower horizons, Fruitland or Pictured Cliffs, are not accessible from vertical drilling, the percentage of unrecovered reserves will increase from that estimate. Also, the RMP states that 145 directional wells "would" be drilled. As a result, this language should be changed to "could be drilled, subject to economic and technical considerations," since a decision whether to drill is always made on this basis.

Gary Markestad, XTO Energy, Inc.

Response:

The estimate of the number of wells that may not be accessible through directional drilling was based on information provided partially by the FFO that referred to accessing the Dakota and Mesaverde formations. There were no projections made to the accessibility of the Fruitland, Pictured Cliffs, or other formations that are shallower than the Mesaverde and Dakota.

Comment:

A decision to exclude these lands from future leasing is not consistent with national energy policy and our country's need for a dependable supply of energy resource.

Gary Brink, Energen Resources Corporation
Gary Markestad, XTO Energy, Inc.

Response:

BLM has the right and responsibility to maintain multiple use of public lands and to designate areas of importance for exclusion to leasing. These few areas out of the majority of leased public lands would not have a significant impact on the nation's energy resource.

Comment:

The total number of wells and surface damages are only those of Federal lands when the impact is also to State, Indian, and Private lands.

Treciafaye (Tweeti) Blancett

Response:

Cumulative impacts are discussed at the end of Chapter 4. Cumulative impacts include those impacts to nearby Indian and privately owned surface and to those lands that may be directly or indirectly affected by the implementation of any of the alternatives.

Comment:

Under Environmental Consequences in Chapter 4, the RMP dismissed the importance of air quality impacts and concentrates on surface disturbance. This may be due to the BLM's area of expertise. Air quality is of greater regional importance.

Wano Urbonas, San Juan Basin Health Department

Response:

Air quality impacts are evaluated for each of the four alternatives. Air quality cumulative impacts are also included in the discussion. The BLM recognizes the importance of impacts to air quality resulting from oil and gas activities in the San Juan basin.

Comment:

Please don't allow the remaining landscape to be destroyed!!!

Sherilyn Bakeman

Response:

The comment is noted. The BLM employs agency guidelines for the evaluation of visual resources. The evaluation is included in this EIS.

Comment:

There is only about a 2 percent difference between Alternatives B, C, and D. Present a true conservation alternative that would include: increased use of modern drilling techniques to reduce land disturbance; reduced drilling; conservation; and renewable energy.

Ed Stevens

Response:

The comment is noted. The use of alternative drilling techniques is included in Alternatives C and D. The inclusion of renewable energy is outside the scope of this EIS.

Comment:

The alternatives describing well development are extensive. We must also plan for the future. I would like to see fewer wells producing for a longer period of time.

Pam Gaylord
Eric Husted

Response:

The alternatives in the EIS are based on the RFDS, which considers all of the remaining mineral resources. Therefore, the RMP is written to evaluate the development of all the wells necessary to deplete the remaining minerals. The alternatives evaluate a great number of wells and do appear to be extensive. In all likelihood, not all of the predicted wells will be drilled within the 20-year timeframe of the RMP.

Comment:

Drilling permits should only be issued in winter to ease water use demand (i.e., no summer water hauling!!).

Denise Nicholas

Response:

Drilling permits are issued throughout the year and are valid for one year, although it is possible for the approval to be extended for an additional year. The timing of the issuance of an approved APD does not dictate the timing of the drilling of a well. In addition, some areas are closed to drilling in the winter to ease the impacts on big game migration and calving. Where conditions warrant, the use of produced water for drilling operations can lessen the use of other fresh water resources.

Comment:

Many commenters have respiratory problems/illnesses that they associate with pollutants released into the atmosphere resulting from oil and gas activity. Other comments reference cancer and decline of health in general. There is concern for the health of children and seniors.

Leisa Glass	*Susan Rarick*
Eunice Keimig	*Mary Beth Truby, Truby Ranch*
Warren and Shirley McNall	*Wano Urbonas, San Juan Basin Health Department*
Darsi Olson	

Response:

The maximum concentration of air pollutants resulting from maximum predicted oil and gas activity, as stated in the EIS, would not exceed national or state ambient air quality standards. Formaldehyde emissions from compressors are predicted to have no impact to the public unless a person actually lived within the boundary of a well location. Educating the public with respect to living with pollutant concentrations that do not violate standards is beyond the scope of this EIS. Sponsoring and conducting as to the effect of oil and gas-associated emissions on public health is not within the responsibilities of the BLM.

Comment:

I have been extremely dismayed by the new gas pipeline, and the destruction of the land with all the roads and heavy equipment.

Linda Canyon

Response:

The comment is noted. The EIS contains the STCs and COAs associated with well drilling and the installation of auxiliary equipment in Appendix G. Appendix D contains the bylaws of the San Juan Basin Public Roads Maintenance Committee. The BLM is currently undertaking a review of its road network.

Comment:

Because it is such a fragile environment we live in, we should be willing to invest in more sound extraction and utilization technologies that protect wildlife, habitat, and biome, not to mention air quality.

Harold Conradi

Response:

The comment is noted. The BLM is obligated to consider the protection of all the resources within the field office area.

Comment:

The RMP does not adequately consider the adverse social and economic effects caused by drilling for federal minerals below privately owned surface. There are no protections for surface and subsurface water and no specifications for well design. There are no protections for private and federal surfaces.

Caren Cowan, NM Cattle Growers Association
Bill Humphries

Response:

Compensation for the use of private surface in order to access underlying federal minerals is a matter left to negotiations between the surface owner and the operator. The BLM applies standard conditions of approval to the APD for a specific proposed well in order to ensure basic protections for the environment and human health. These COAs may be modified by agreements made privately between the landowner and the operator. Additional stipulations such as these can be submitted to the BLM for incorporation into the approval procedure. The APD for each well includes a drilling plan and a surface use plan that details well design and surface use. Precautions for the protection of surface water and subsurface water are included in the plans that must be approved by the BLM before operations can proceed.

Comment:

The draft does not discuss any serious efforts to increase the control of subsurface leaks and/or casing failures and other potential ground water pollution problems. All new wells should be required to install surface casing from the surface through the deepest fresh water aquifer in the wellbore.

Bill Humphries

Response:

Onshore Order No. 2 requires that all useable water zones be protected and/or isolated by casing or cementing. APDs include a drilling plan. All drilling plans include specifications for the installation of surface casing and cement to protect near-surface useable aquifers. Subsurface leaks resulting from casing failures results in lost production. Not only are operators required to maintain the integrity of their subsurface pipe to protect fresh groundwater, a breach represents lost revenue. All wells are inspected for mechanical integrity on a 3-year cycle by NMOCD. Leaks are repaired as soon as they are discovered.

Comment:

The number of wells that are near abandonment and the number of wells that should be abandoned are not defined in the draft but should be and should have a great deal of definition as to what BLM will do to be sure they are properly plugged and abandoned.

Bill Humphries

Response:

As included in the General Requirements for Oil and Gas Operations on Federal and Indian Leases, the FFO must approve plugging procedures for a specified well before abandonment operations commence. Policy requires that BLM personnel witness all pluggings in order to assure that proper procedures are followed. In this way, the BLM assures that proper procedures are followed. An outline for a compliance strategy has been added to the PRMP/FEIS. Reclamation of plugged and abandoned wells is included as a priority action item. The number of wells that have been abandoned but not yet released from bonding requirements is not available. The assumptions listed on Pg. 4-2 of the DRMP/EIS estimate that final abandonment would occur at an initial rate of 133 well pads and associated ROWs per year. The rate would increase at 5 percent per year over 20 years.

Comment:

There should be no more drilling on BLM lands in the basin, or there should be no net gain in surface disturbance.

Bryan Doherty
Bill Humphries
Roger Polisar, NMED Air Quality Bureau
Sally Shuffield
B. Brooks Taylor

Response:

A mandate of "no new drilling" would prevent accessibility to all of the remaining leased minerals. If new wells were drilled only as old ones are reclaimed, this one-for-one exchange also would not be feasibly allow production of all leased minerals. The average well life in the basin is 20 years or greater. A one-for-one exchange would not allow the development of a sufficient number of new wells to meet the energy demands of our nation. In order to achieve "no net gain of surface disturbance," the BLM would be limiting or preventing the accessibility of leased mineral resources. These actions could be considered failure to comply with the contract requirements of the lease.

Comment:

This Alternative should include detailed information, plans and requirements to clean up, reclaim, revegetate, and repair existing damages. When any new APD is evaluated and before it is approved these requirements would be a condition of approval. This Alternative should define specific trial projects to be completed and evaluated by BLM, both Albuquerque and FFO.

Bill Humphries

Response:

Approved APDs contain COAs that include provisions for well abandonment and pad reclamation. Appendix G in the EIS provides examples of the framework under which drilling and operations take place.

Comment:

A new alternative E should be developed which includes complete determination of the existing damages and what they mean to potential litigation or declarations of impaired status or non functioning condition of uplands and ephemeral washes/riparian areas.

Bill Humphries

Response:

Not all surface disturbance associated with oil and gas activity can be considered as "damages." The BLM standard COAs include provisions for well drilling, operation, abandonment, and reclamation and are contained in Appendix G. Site specific conditions may also be added. The conditions are intended as environmental safeguards.

Comment:

This new Alternative should also require that any changes of Unit Spacing would require full Environmental Assessments as to the surface impacts before proceeding to the New Mexico Oil Conservation Division hearings. Most often BLM would not need to approve a request for down spacing under this Alternative because the additional wells would be directionally drilled from existing pads.

Bill Humphries

Response:

Changes to spacing regulations are based on extraction of the mineral resource to the greatest extent possible. The BLM is obligated to promote the extraction of its mineral resources where it will not irretrievably harm the environment. The BLM is the surface management authority for its lands. Impacts to federally managed surface are not the responsibility of the New Mexico Oil Conservation Commission.

Comment:

My second objection to the permitted drilling of 12,500 more wells is the poor track record of the oil and gas industry. The policy of the Oil and Gas companies seems to be one of "Let's see how much we can get away with." That is apparent all over this area. My family and I have suffered from the lack of concern and the "devil may care" attitude of the oil and gas companies that directly impact our home. For many years, the dump on the Storey B-2 well east of our home would periodically malfunction and the heavy aroma of raw gas would infiltrate our home. I called the various companies who owned the well and the sheriff's department and wrote letters. Nothing was done to alleviate the problem until I called the NM Oil Conservation Office here in Aztec. Low and behold, the problem was taken care of immediately.

Warren and Shirley McNall

Response:

The comment is noted.

Comment:

New roads over 300 feet in length should be gated, fenced and locked.

Glenn Beiter

Response:

The comment is noted. Guidelines for road construction are contained in the COAs listed in Appendix G.

Comment:

Existing well roads should be examined for duplication and necessity. Duplicate roads should be physically closed, plowed and seeded. There needs to be a systematic determination of what roads are necessary in the basin. The ones that are not necessary need to be reclaimed. 80 or 90 percent of the well pads can be reclaimed. Vegetation can be kept down using manual means. There are excessive surface damages and inadequate reclamation.

Glenn Beiter Caren Cowan, NM Cattle Growers Association
Bill Humphries

Response:

As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

Coalbed methane is not discussed in the EIS. Cumulative impacts of CBM are not discussed with respect to similar development in Wyoming, Montana, and Colorado. Methane seeps are not discussed in the EIS. Methane and hydrogen sulfide seeps though the soils to the surface and into water accessed by water wells. Oil and gas companies are buying private property in order to keep people quiet.

Len Carpenter, Wildlife Management Institute
Bill Day
Elizabeth Koos
Michael McCarthy, McCarthy Law Office
Jane McGarry
Darsi Olson
Mark Pearson, San Juan Citizens Alliance
Kathy Price
Janet Rees
Jeff Regan
Ken Stanley

Response:

Methane may also be released to the atmosphere in a variety of ways. Gas is more readily released when the originating formations are near the surface. Assessing the safety of any person exposed to these gases must be performed on a site-specific basis. Gas concentrations must be measured and the exposure pathways determined in order to evaluate risks to human health. Individual evaluations are beyond the scope of this EIS. The quantity and quality of water produced in association with CBM varies by region. Therefore, it is not necessarily appropriate to make direct comparisons. An overview of CBM operations in the San Juan basin of northwestern New Mexico and the Powder River basin of central Wyoming has been added to the EIS in Appendix L. It includes a brief description of how CBM is formed and provides the basis examining why production operations may vary from play to play. The production of CBM gas varies according to the physical nature of the gas reservoir and its hydrogeologic setting. CBM wells producing from the Fruitland formation in the San Juan basin produce, in general, less water than the average amount of water produced in association with CBM in the Powder River basin. Because the water in the Powder River basin is potable (less than 500 mg/L TDS), a large portion of CBM-produced water could be stored or released on the surface. The high-TDS water produced in the San Juan basin will continue to be injected into deep subsurface formations until an alternative disposal technology is substantiated. There is no evidence that deep injection of produced water in the FFO has caused any impact to potable water aquifers.

Comment:

To protect valuable wildlife habitats and other resources it is important that additional surface restrictions for energy developments be considered in the planning process. Future energy developments should be more orderly and planned than have developments to date. Stages with smaller development packages should be prescribed. The concepts of adaptive management should be seriously considered as the various stages of development are planned for. Nowhere in the plan do I see these ideas advanced.

Len Carpenter, Wildlife Management Institute

Response:

Development packages are designed by the operating companies in response to demand for the resource and the economic climate. The BLM responds to development scenarios with guidance documents such as this RMP.

Comment:

The decision to lease additional minerals should consider upfront impacts to the environment. Once leases are let, many of the management strategies for the tract of land are lost.

Gary Brink, Energen Resources Corporation
Len Carpenter, Wildlife Management Institute

Response:

BLM operates in accordance with FLPMA, which mandates that the BLM consider multiple uses for the lands it administers. This concept includes consideration of the land's inherent natural resources including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner.

Comment:

The negative impacts of coal bed methane development on water quality and quantity and its relationship to hard coal mining must be factored into this analysis even though CBM analyses may come under oil and gas leasing and development primarily.

Len Carpenter, Wildlife Management Institute

Response:

The BLM considers all resource values when determining whether to make land available for oil and gas leasing. Impacts to water quality would be a resource that is evaluated in relation to the mineral resource. The BLM guidance document "Policy on Conflicts between Coal Bed Methane (CBM) and Coal Development," Instruction Memorandum No. 2000-081 (Culp 2000), provides procedures for CBM and coal development.

Comment:

Why not use alternative energy, such as solar, to operate compressors?

Deb Banton, San Juan Basin Health Department	*Chris and Patty Isensee*
Nora Flucke	*Paul and Carolyn Staby*
Richard Grossman	*Bill Williams*

Response:

The comment is noted. The analysis of the use of alternative energy is out of the scope of this EIS. Alternative energy sources are not included in the alternatives.

Comment:

Under applicable New Mexico law and regulations that the NMOCD administers, spacing is regulated in order to prevent waste and to provide for the conservation of natural resources. Under New Mexico law, the prevention of waste, importantly, is not limited to waste of oil and gas resources, but encompass consideration of the waste of all mineral resources. The question of increasing well densities within the San Juan Underground Mine presents significant issues concerning the potential waste of coal that may be by-passed as a consequence of additional drilling within the mine area. Moreover, under the terms of applicable oil and gas leases, the BLM has not granted those lessees or the NMOCD the authority to determine the rate of well drilling and development. Rather, the Secretary retains the authority to determine the rate of development and production, and those determinations are to be made in the public interest. As it relates to the San Juan Underground Mine, in the RMP revision, the BLM should preserve the Secretary's authority to constrain development of oil and gas wells in order to promote the vastly more beneficial coal development at the San Juan Underground Mine.

Charles Roybal, BHP Billiton Limited

Response:

The comment is noted. Guidance for resolving conflicts between lessees is provided by the BLM memorandum "Policy on Conflicts between Coal Bed Methane (CBM) and Coal Development" issued on 02/22/2000 by the Assistant Director of Minerals, Realty, and Resource Protection of the BLM in Washington, D.C. This memorandum (IM 2000-081) emphasizes protection of the rights of each lessee, optimizing the recovery of both resources and the return to public while at the same time protects public health, safety and the environment.

Comment:

There is absolutely no support for the notion that there is legitimate gas development potential for 52 Bcf per section in the vicinity of the San Juan Underground Mine. BLM's own February 2000 Maximum Economic Recovery Report, San Juan Mine Lease By Application-NM99144 ("BLM Report") indicates that the oil and gas leases now claimed by Dugan and Richardson on the lands encompassed by SJCC's two federal coal leases (involving 12 sections) have produced approximately 2,614,200 mcf of gas total as of July 1, 2001. The BLM Report also indicates recoverable gas reserves of 36,843,839 mcf on SJCC's Deep Lease and Deep Lease Extension (BLM Report, Appendix 4, Exhibit 7). Roughly, as to all 12 sections of federal lands within the San Juan Underground Mine, BLM's own studies indicate total potentially recoverable reserves of 39,460,000 mcf of gas or 39.46 Bcf. This translates to under 3.3 Bcf per section. This comparison alone should demonstrate that lands within the San Juan Underground Mine should not be considered a "high development area" for gas development and production. In addition, SJCC submits that there are flaws in the assumptions used by the BLM in the referenced study, and that even the BLM Report overestimates potential recoverable gas reserves from those lands. Accordingly, SJCC submits that the western boundary of the high development area be redrawn along the line between Ranges 13 and 14 West, rather than in its current location between Ranges 14 and 15 West.

Charles Roybal, BHP Billiton Limited

Response:

The DRMP/EIS does not include or reference the contents of the February 2000 BLM report described in the comment. Therefore, this comment is noted.

Comment:

On Page 3-9 of the Draft RMP, BLM states, "the FFO operates under a BLM mandate to produce coal gas prior to mining for coal." SJCC submits that there is no such BLM mandate, and that any such mandate would be inconsistent with applicable federal law, regulation, and lease terms. SJCC submits that the quoted language be removed from the Final RMP. As the BLM Farmington Field Office should be aware, the BLM is undertaking a review of these matters, but has a no "mandate" as described. Similarly, SJCC submits that the following statement is also incorrect: "FFO policy prioritizes extraction of CBM over mining of coal." (see Draft RMP, p. 3-12). SJCC has not been apprised of any such policy, and submits that any such policy, if it exists, is inconsistent with applicable law and regulation. Such a policy, applied to SJCC's San Juan Underground Mine area, would be detrimental to the public interest.

Charles Roybal, BHP Billiton Limited

Response:

Guidance for resolving conflicts between lessees is provided by the memorandum “Policy on Conflicts between Coal Bed Methane (CBM) and Coal Development” issued on 02/22/2000 by the Assistant Director of Minerals, Realty, and Resource Protection of the BLM in Washington, D.C. (IM 2000-081) The memorandum states, in part, “To optimize resource development, BLM may: Direct rates of CBM exploration and development to maximize CBM gas production prior to coal development” ... and “Direct the coal lessee to analyze all possible mining plans to allow optimum recovery of CBM and deeper hydrocarbons...(Culp 2000).”

Comment:

Any CBM development and production activities should be pursued in close coordination with SJCC in order to manage the safety and other risks associated with CBM production, given the geologic and engineering conditions encountered in the Fruitland coal seam at the San Juan Underground Mine. Spontaneous combustion and risks of roof falls or cave-ins pose real risks to underground miners that may be exacerbated by CBM development and production activities in advance of mining. Those risks may be minimized if the CBM activities are closely monitored and coordinated.

Charles Roybal, BHP Billiton Limited

Response:

The BLM encourages the development of agreements between CBM and coal lessees that resolves potential conflicts and may include the topics of safety and other risks presented by both operations.

Comment:

Resolutions of conflicts between CBM and coal lessees should be founded upon reasonable determinations of the relative value of the oil and gas resource and the coal reserve. The US and New Mexico could lose significant royalties from coal that would have to be bypassed due to oil and gas development. On the other hand, there should be clear stipulations in the coal lease that establishes the value of CBM and provides for compensation for gas that is lost from coal mining. Procedures need to be established for new leases.

Charles Roybal, BHP Billiton Limited

Response:

The BLM exercises authorities provided in the leases and regulations to optimize the recovery of both resources. BLM leases provide that the BLM may lease the same tract for the development of more than one mineral resource provided that it does not reasonably interfere with the operations of the senior lessee and subject to DOI regulations. Coal mining eliminates the methane resource, but waiting for CBM development may delay mining operations beyond the time of favorable economics. BLM resolution of conflicts among lease holders is authorized by the Mineral Leasing Act and other federal regulations and lease provisions. In the absence of a settlement that resolves the conflict, the BLM uses existing law, regulations, and lease provisions to optimize the recovery of both resources (Fulton 2001). Every new coal or oil and gas lease will contain, to the greatest extent possible, reasonable stipulations that will facilitate resolution of future development conflicts (Culp 2000).

Comment:

Dugan Production's experience, to date, with existing split estates has been very negative and we strongly encourage the BLM to find other alternatives to splitting the surface and mineral ownership, not only for Alternative D, but also for the 264,800 acres that are projected under the current Management plan. In principle, splitting the surface and mineral ownership seems to be an easy and logical solution to maintaining existing mineral leases and allowing the surface to be used for something other than as public lands. However, in splitting the estate, the new surface owner typically has little to no incentive to work with the mineral lessee on development and operational issues. The surface owner is the party imposed upon by operations related to the mineral development and the surface owner's only recourse for compensation is high surface damage and ROW fees. In addition, approval times for permitting typically are substantially extended (i.e., from 30 to 60 days for federal minerals and surface, to 6 to 18 months for federal minerals and Indian surface). In splitting the estate, there should be clear an understanding between the mineral ownership and the new surface owner that there is an existing mineral lease and that, should mineral development occur, the surface owner must conform to the policies and procedures that would exist had the surface been maintained by the mineral owner. It is not fair to force the mineral lessee to accommodate new and different surface management simply because the BLM split the estate. On Page 1-10, the BLM acknowledges that it is "more difficult to develop the retained federal minerals" on lands that have been split and to reduce the impacts of split estate, where practical, the BLM may pursue "mineral exchanges." Mineral exchanges (keeping the estate in tact) may be preferable to splitting the estate, but prior to exchanging the minerals, the existing mineral lessee should be given notice of the potential exchange and given the opportunity for input or to also sell or transfer his leasehold interest prior to the exchange; after all, the lessee has spent money acquiring a Federal oil and gas lease only to find that he now has an Indian gas lease, and for some operators this is not a desirable sequence of events.

John Roe, Dugan Production Corporation

Response:

The comment is noted. The BLM recognizes that there are many difficulties associated with split estates. Split estates were addressed in Alternative D in order to distinguish it more readily from the other alternatives.

Comment:

The Draft RMP reader is left with an impression that the BLM is considering whether additional Federal lands, within the FFO jurisdiction, should be considered for oil and gas leasing (Page 1-9, Issue #1, Item #1). The leasing of federal minerals is very important to Dugan Production and we encourage the BLM to make available for oil and gas leasing as much federal land as is possible. Production from federal lands is very important to providing our national energy needs. Currently, we are having to import +/-60 percent of our crude oil needs, and to withhold ANY acreage that has potential oil and gas development is contrary to national efforts to become less dependent upon volatile foreign oil supplies.

John Roe, Dugan Production Corporation

Response:

The comment is noted. The BLM is obligated to consider leasing its mineral estate if it is determined that there are producible resources.

Comment:

The terms "commingling" and "dual completions" require a detailed explanation to the public in order to determine if the assumed future percent of commingling/dual completions (Chapter 4 - Cumulative Impacts) is in fact a reasonable assumption. This addition to the document is critical to understanding the Best Available Technologies to minimize new ground disturbances. A cost benefit analysis would be appropriate.

Barry Rhea, Rhea Environmental Consulting

Response:

Commingling refers to combining production from two zones within the same production string in a single wellbore. Dual completions refer to two production strings within a single wellbore, each producing from a distinct formation. See SAIC 2002d, "Directional Drilling Technical Report," an unpublished report available from the FFO, for a more complete discussion of alternate drilling technologies.

Comment:

In Chapter 1, the planning criteria for addressing oil and gas leasing and development fails to quantify the number of wells in which dual completions are possible. By leaving this number to unsubstantiated assumptions (Chapter 4 – Cumulative Impacts), the Draft RMP/EIS, in affect, leaves it to the producers to determine whether commingled or dual completions will happen. It makes the public wonder who is really managing the resources.

Barry Rhea, Rhea Environmental Consulting

Response:

The option to employ commingled production or dual completions depends on several factors including an operator's rights to develop multiple formations, formation compatibility and correlative rights. After due consideration, the operator may combine more than one formation in a single wellbore. Regardless of the completion procedure, final approval lies with the BLM. The BLM, however, may impose surface conditions that may encourage these types of production techniques in order to access the leased minerals. Whether the operator employs these techniques depends on economic viability. To drill a commingled well or one with multiple completions costs approximately 22 percent more than an equivalent single completion, vertical well (Lovato 2001).

Comment:

It is absurd to assume that no new surface disturbance will occur from associated pipeline installation. Pipelines should be placed along roads, not in separate rights-of-way.

Glenn Beiter
Barry Rhea, Rhea Environmental Consulting

Response:

Pipelines are usually constructed within the right-of-way granted for the access road, therefore causing little or no additional disturbance. Surface disturbance associated with larger new pipelines was estimated as a function of the estimated additional future compression. This amount was included in the analyses.

Comment:

Fifty percent or more of the traffic on some country roads (referenced 328 and 330) is caused by the oil and gas industry. Oil and gas company vehicles speed, are taking over pastoral rural neighborhoods, and cause dust.

Daniel Harris
Paul Lerno
David and Pati Temple

Response:

Oil and gas companies constructed many of the roads within the rural areas of the San Juan basin to access their wells. The primary use for the roads is, therefore, industrial. The construction of the roads allows access to previously undeveloped areas by the public. As recreational use increases in the basin, these roads will see more use by the public. Speed limits apply to the rural roads; however, it is difficult to enforce them because of the lack of enforcement capability. The creation of dust clouds is exacerbated by speeding vehicles and dry weather conditions.

Comment:

What happens when there is a wildfire in a gas field? What happens to pipelines that lie on the surface? Are operators responsible for responding to fires? Do they have an emergency preparedness plan?

Paul Lerno
Darsi Olson

Response:

The threat of a fire to a well or pipeline is diminished by reduced vegetative cover near the pipeline or around the well. Pipeline rights-of-way are cleared of vegetation before the pipelines are installed and are kept free of weeds and brush, minimizing the amount of fuel there is to burn. Wells and pipelines are periodically checked for mechanical integrity.

Comment:

The company that has the methane gas well on my property has a lot of trouble. They have lied to me, they cost me thousands of dollars of lost income from my property, and also they have destroyed at least two acres of my property when a pit they had on the property overflowed. The company's been trying to reclaim that land. They have spent tens of thousands of dollars trying to clean it up, but nothing grows there yet.

Paul Lerno

Response:

The comment is noted. The matter of split estates is difficult for both the landowner and the BLM. The company has shown, however, a good faith effort to restore the land.

Comment:

There's nothing in the EIS about water. It requires so much water to process just one well, where are we going to get all this water?

Heather Snow
Brian Wood, Permits West, Inc.

Response:

Water use for well drilling is evaluated for each alternative. Water may be obtained from nearby reservoirs and rivers with permission from appropriate authorities or from water wells drilled specifically for that purpose. In addition, use of produced water as make-up water for drilling operations in some cases, can be a feasible alternative to using fresh water from local water supplies.

Comment:

The other main thing was that there's no air pollution control devices on the compressors. When I was seeking some information about the air quality, who checked the air quality out on the compressor stations, I got the run-around. Nobody is actually checking out these compressor stations, and when they do, it's very infrequent.

Heather Snow

Response:

The State of New Mexico regulates air quality within its boundaries. Currently, only large compressors require permits according to state regulations. On BLM lands, BLM may authorize the use of its surface for compressor installation, but it does not regulate the emissions. When a permit to install a compressor is received, the applicant submits emissions levels for various pollutants, such as VOCs, NO_2 and CO, associated with the particular compressor in the application. Although emissions from the equipment are not monitored, emissions are quantified through the use of manufacturer's specifications. If the emissions exceed those associated with a low emission engine, the application may not be approved.

Comment:

Oil and gas companies are not investing enough money to maintain roads, reclaim pipelines, protect watersheds, and control erosion. They must be made to take care of the roads. Burlington's maintenance expenses average about $200 per well per year, and that amount is not sufficient to maintain roads, pipelines, and well pads.

Treciafaye (Tweeti) Blancett
Don Schreiber
Heather Snow

Response:

BLM roads are managed under provisions contained in the BLM "Gold Book" and BLM Manual 9113. In addition, the San Juan Basin Public Roads Committee, whose members include BLM and industry representatives, has developed bylaws that address road maintenance for collector roads in the basin. The bylaws are contained in Appendix D of the EIS. Committee members meet monthly to discuss the condition of collector roads and identify those roads that need upgrades or maintenance. Maintenance is performed on an as-needed basis in order to ensure compliance with BLM regulations and safe conditions. Most road maintenance on BLM lands is either paid for or performed by oil and gas operators.

Comment:

We also live four miles away from a significant fire from last year that was caused by a gas well that didn't get a lot of attention in the press. And we're real concerned about that as an issue.

Jennie Dear

Response:

The BLM requires that it be given notice as soon as practical of any fire caused by oil and gas operations. As with any industrial operation where fire is possible, operators are required to operate under the safest conditions possible and to formulate appropriate response plans in case of emergencies.

Comment:

Leaking wells or accidental chemical spills may pollute our rivers if a well is drilled on its banks. There is likely to be little or no response time. Hazardous materials are used in drilling wells. There is little information included on spill prevention.

Cheryl Eckhardt, National Park Service, Intermountain Region
Ken Stanley
Travis Stills, Citizens Oil & Gas Support

Response:

Oil and gas operations throughout the basin are subject to the U.S. regulations such as the Resource Conservation and Recovery Act (RCRA), the Occupational Health and Safety Act, the Clean Air Act, the Clean Water Act (CWA), and the Oil Pollution Act (OPA). As with many industrial operations, some of the materials used in drilling and producing oil and gas are considered hazardous. Some of the wastes produced in association with these activities are provided exemptions from regulation under RCRA. However, other laws, such as the CWA may then come into effect to provide restrictions on how those wastes may be disposed. This is the case for the handling and disposal of produced water. Spill procedures and a spill control and countermeasure plan (SPCC) are mandatory if a facility is subject to OPA and the CWA. SPCC plans require a spill history and require analyses of potential pollutant sources. The measures contained in these plans are designed to prevent releases of petroleum products in the waters of the United States. The EIS contains alternative resource management prescriptions, one of which will be chosen as the field office RMP. RMPs do not specifically regulate spills or chemical releases. Other environmental laws serve that purpose.

Comment:

The diminishment of our quality of life, as reflected by air quality, wildlife and their habitats, archaeological resources, soils, and vegetation, by oil and gas operations is too great to allow for the amount of new drilling predicted by the RFDS. Oil and gas companies will benefit from implementation of any of the alternatives, and their operational development is irresponsible. The basin will become an industrial park. It is easier to protect our natural resources now than to try and re-establish these resources after development has taken place.

Judith Brey
Bonnie Cramer
Elizabeth Franklin
Mary Jo Gage
S. Grey
Will and Jean Hobbs
Jan Holt
Gary Hopkins
Mary Idins
Tom Klema
Barbara Kowalik
Alexandra Lamb
Paul Lerno
Alicia Malone
Eileen Music
David Peters
Laura Pilewski
Anahata Pomeroy, Anahata Sounds and Ceremonies
Michael Robinson, NM Wilderness Alliance
Ron Schroeder
A.J. Smith
Kathleen Stachowski

Response:

BLM operates in accordance with FLPMA, which mandates that the BLM consider multiple uses for the lands it administers. This concept includes consideration of the land's inherent natural resources including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner. This EIS examines the impacts of the four alternatives to each resource area individually and in combination. The document cannot, however, address the effects to "life quality" issues because its consideration is inherently subjective. Actions that result in a loss to quality of living for one person may be inconsequential to another person.

Comment:

I also appreciate Mr. Henke's reference and his comments to the fact that there are site-specific environmental assessments prepared for each of the wells or applications for permits to drill. However, when we've attempted to obtain copies of those, we encountered a policy in your office that we need to pay cash to get a copy of each EPA, which is the only office that we've ever encountered. Well, in any of the three states where I've actually worked with the BLM—Colorado, Utah, or Wyoming—no one has ever asked to us pay cash to get a copy of an environmental assessment so we could review it and offer comments on an activity proposed by a public agency.

Mark Pearson, San Juan Citizens Alliance

Response:

Comment noted.

Comment:

Comments object to the difficulty in obtaining copies of APDs and, in some cases, having to pay a fee for the copy.

Mark Pearson, San Juan Citizens Alliance

Response:

APDs are a matter of public record. Each BLM office determines whether it is cost effective for the documents to be provided to the public at no cost.

Comment:

I also request a plan for mitigation of the existing coalbed methane in the San Juan Basin.

Kathy Price

Response:

Conditions of approval are incorporated into each approved APD, including permits that address the development of a CBM well. The COAs address mitigation of impacts associated with well development.

Comment:

I am objecting to the all—the entire RMP—as it relates to oil and gas. I think it's flawed and segmented.

Treciafaye (Tweeti) Blancett

Response:

The comment is noted.

Comment:

88,000 acres of existing surface damage. Now, I really want to disagree with this one, and I've come up with this number by myself, so if you want to argue with me, let's get it on. 315,000 acres. And how I arrived at that is I took 33,000 wells times three acres for a well site—and believe me there's some that are considerably bigger than that that I showed already today—three acres for a pipeline right-of-way, and three acres for a road. Simple math comes up with 315,000.

Treciafaye (Tweeti) Blancett

Response:

Estimates of surface disturbance are based on historical data provided by the BLM FFO and by operating companies in the basin.

Comment:

The cumulative impacts analysis does not consider impacts to all land in the basin, including federal, Indian, state, and private lands.

Treciafaye (Tweeti) Blancett
Mark and Alice Freitag

Response:

Cumulative impacts include impacts to nonfederal lands. They are described in detail with reference to each alternative at the end of Chapter 4. The analysis includes the use of water for well drilling for federal and nonfederal minerals and the net surface disturbance on lands associated with federal and nonfederal minerals.

Comment:

We need state and federal legislation passed establishing no-drill buffer zones along America's rivers.

Ken Stanley

Response:

There are no regulations that specifically exempt the areas along rivers from drilling and production operations. All development in floodplains requires appropriate permitting by the Corps of Engineers. On river tracts managed by the BLM, controlled surface use or no surface occupancy constraints are used to control disturbance in floodplains.

Comment:

I have two wells right behind my house. One is a new one, one was there when I moved there. The old well is 7/10 of a mile from my house. Every day I smell it, and in three years it takes an average of 37 calls to the owner company of that well to get them to come adjust it. Thirty-seven phone calls to get them to come out and stop it from stinking and leaking. I don't think this is good stewardship of the land. And since this is my only example of how the oil and gas industry operates, I have to take that as how they're going to operate these new wells that they want.

Karen Evans

Response:

The comment is noted. There are no BLM management standards for odor. However, if BLM is made aware of a problem, the field office will work with the company to address the problem, if it is a BLM permitted well, or refer the affected individual to the appropriate agency for state or private wells.

Comment:

The industry must be required to use existing roads, well pads, and pipelines if at all possible.

Janet Rees

Response:

Comment noted.

Comment:

Produced water is expected to be disposed in injection wells or evaporation ponds. What are the controls for evaporation ponds? The potential of infiltration from unlined pits or from spills is mentioned. Management plans must address these possibilities. What will be done to keep wildlife and livestock away from the ponds to prevent poisoning?

Janet Rees

Response:

If there is a spill on BLM land, it must be reported immediately to the agency. Operators whose facilities are such that they are required to prepare and implement a Spill Control and Countermeasures Plan have response procedures in place. Spill cleanup and materials disposal is monitored by the BLM. Spills and other undesirable events (blowouts, fires, accidents etc.) are handled under the provisions of NTL 3A "Reporting of Undesirable Events." Disposal pits off BLM administered lands are permitted and monitored by the NMOCD.

Comment:

Spacing for the Fruitland Coal should not be decreased from 320 acres to 160 acres.

Janet Rees
Steve and Lisa Self

Response:

In October 2002, the New Mexico Oil Conservation Commission ruled that the spacing for the Fruitland formation shall remain at 320 acres but allowed an optional infill well outside the high productivity area commonly referred to as the fairway. Based on industry's appeal of the NMOCD ruling, the spacing issue will be reheard in April 2003.

Comment:

Downspacing to one well per 80 acres for drilling the Dakota formation should be prohibited. There will be nothing but wells. Dual competitions, re-completions, and commingling are possible solutions which will result in fewer new well pads and should be required. It is difficult to prove that BLM is managing equitably for all resources when this kind of well concentration is permitted.

Janet Rees

Response:

The BLM is obligated to manage all of its natural resources; however, it is not bound to manage them equitably. If the mineral resource is leased, then the BLM is obligated to allow reasonable access to extract the mineral resource. The BLM cannot require the lessee to utilize specific drilling technologies to access the leased minerals. The BLM can, however, impose surface management constraints that protect the natural resources on the surface.

Comment:

If the maximum number of wells were drilled within the following 20 years, what will happen to subsequent oil and gas operations?

Barbara Truby, Truby Ranch

Response:

The RFDS predicted the maximum number of wells that may be developed in the San Juan basin over an indefinite period of time. This maximum number reflects many considerations, among the quantities of mineral reserves remaining subsurface and the rules governing well density. The BLM RMP examines resource management with the FFO over the next 20 years. It is unlikely that the maximum number of wells that could be drilled over time will be drilled within the next 20 years. The rate of oil and gas development depends upon the country's need for the resources and general condition of the economy. The EIS looks at the most development possible in order to ensure that impacts over the next 20 years are bounded by the numbers developed in the RFDS.

Comment:

And to my knowledge, I have never seen anything that I have been able to locate that the BLM said it would not allow an oil pad to be revegetated the same as the natural habitat. So I think there is an area there that needs to be addressed.

Bill Humphries

Response:

Well pads, roads, and pipelines are revegetated according the seed mixture designated in the COAs added to the APD for each particular well. The list of COAs is included in Appendix G. Seed mixtures consist of native, noninvasive species.

Comment:

Inadequate compensation for damages, and archaic laws regarding private landowner rights overlying severed minerals.

Caren Cowan, NM Cattle Growers Association

Response:

The BLM acknowledges the challenges that private landowners face when they do not own the mineral estate. Compensation for damages incurred as a result of drilling and production operations on private surface are left to the individual landowner and the operating company. Compensation is usually based on the amount of land needed for well development, impacts to land use, and the amount paid to other landowners in the area.

Comment:

Lack of a plan to adequately address existing problems from historic operations and damages, which include repairs, cleanup, reclamation, mitigation, and revegetation.

Caren Cowan, NM Cattle Growers Association

Response:

The BLM is aware that there are areas that require inspection to determine if the lessee has met the conditions of approval associated with its APDs. A compliance plan for new well pads and ROWs will be developed by October 1, 2003. The plan will integrate existing initiatives and prioritize areas with outstanding problems. A timeline for correcting problem areas will be included, as will a strategy for assigning adequate personnel to address the issue.

Comment:

This proposed layout was an example of everything that is contrary to good engineering practices.
James and Diane Benesch

Response:

The comment is noted.

Comment:

With a gas field of this size and complexity, isn't security a major concern? I didn't notice any plan to secure this field. What if an airplane would crash into the field? What if a forest fire were to start on the field? What if some terrorists were to attack the field (we all know that they are unconcerned with their lives)?
James and Diane Benesch

Response:

A plan for protecting the existing and future well development in the basin from terrorists is beyond the scope of this EIS.

Comment:

We applaud your support of $1,000 per acre fee for clearing oil pads, with $$ to be used for habitat improvement. We support development of alternative energy sources (e.g., wind, solar, etc.).
S.D. Schemnitz, Southwest Consolidated Sportsmen

Response:

The comment is noted.

Comment:

Alternative drilling methods such as horizontal drilling would, if used in the San Juan basin, reduce adverse impacts such as noise, air pollution, and scarred landscapes from wells and roads. Why can't several wells be drilled from one location? The BLM must consider/require feasible technical alternatives such as horizontal drilling.

Judith Brey
Kevin Drees
Bill and Marguerite Flick
Nora Flucke
Mark and Alice Freitag
Kathryn Goldman
S. Grey
David Hamlow
Jan Holt
Alicia Malone
Eileen Music
Mark Pearson, San Juan Citizens Alliance
Laura Pilewski
Susan Rarick
Ed Stevens
Bill Theimer
David Weingarten, NM Wildlife Federation

Response:

The use of alternative technologies is determined by many factors, including the physical characteristics of the formation and the economics. It is not always possible to drill to a formation and be able to produce it using an alternative technology. In addition, if the use of an alternative technology is possible, the additional cost of using such a technique may preclude its feasibility. The BLM can develop surface management prescriptions to encourage the use of alternative drilling techniques; however, it cannot mandate alternative technologies. The BLM cannot require an operator to use a particular method of drilling to access its leased minerals.

Comment:

I am in favor of tough standards set and enforced regarding drilling practices, reclamation, clean-up, reseeding, erosion control, native plant species protection, and water and wildlife protection.
David Hamlow

Response:

The comment is noted. The BLM strives to enforce all of its STCs and COAs, which address the issues noted in the comment.

Comment:

The document provides no information regarding the need for increased oil and gas production or land use management revisions.

Robert Lawrence, Environmental Protection Agency

Response:

Increased oil and gas production is a result of industry demand to develop existing leases in order to respond to increasing national consumption of energy resources. Population growth in the planning area has also placed additional demands on the public lands resulting in the need to revise outdated plans. The EIS includes three alternatives to the no action alternative. Each of these three alternatives, B, C, and D, consist of revisions to current land use management prescriptions.

Comment:

Redraft sentence: "Reserve pits will be closed as soon as practical after cessation of drilling and completion operations and well tie in, but in no event longer than one year from completion of the well. All reserve pits remaining open after twelve months from completion will need written authorization from the BLM." BLM Onshore Order #7 currently provides the operator the opportunity to produce water to the reserve pit for 90 days following completion of the well. Allowing for evaporation to dewater and dry the reserve pits for proper closure requires a significantly longer timeframe during winter versus summer months. Absent using evaporation techniques, dewatering of the reserve pit requires truck hauling, which increases road traffic and potential for accidental discharges.

David Wacker, Conoco, Inc.

Response:

The BLM COAs contained in Appendix G allows an operator to request an extension of the length of time to needed to close a reserve pit over the 90-day post-completion limit. Thus, an operator may, with authorization, allow the pit to remain open until the pit is dry, eliminating the need for the fluid to be transported from the location by truck.

Comment:

The second to the last sentence should be amended to read: "Upon completion of the well, if oil is on the pit as stipulated in Onshore Order #7, the reserve pit will be covered with screening or...".

David Wacker, Conoco, Inc.

Response:

Reserve pits are temporary structures. If the BLM determines that there is a need for screening in order to prevent avian species from entering the pit, the BLM has the option of adding a COA specifying this requirement.

Comment:

Proper land reclamation and invasive species control are essential for the long-term health of our beautiful landscape.

Heidi Rhoderick

Response:

Recognizing that proper reclamation and invasive species control are essential to preserving the long-term health of the environment, the BLM COAs applied to all wells drilled in the FFO contain specifications for reseeding and abandonment of well locations.

Comment:

The identification and development of BMPs is of critical importance. The determination of any necessary BMP should be made in consultation and cooperation with the affected industry utilizing the Department of Interior's 4Cs guidance. To achieve consistency, the RMP/EIS should indicate that BLM will rely on BMPs established by appropriate agencies and will not impose redundant or conflicting BMPs or COAs, when existing federal or state rules already require such actions.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.

Response:

The comment is noted. The BLM makes every effort to ensure that COAs do not conflict. BMPs are not necessarily COAs unless so stated in an APD.

Comment:

Pages 2-234 to 2-235: The number of well locations that are inaccessible due to NSO may be higher than 28, if the NSO areas overlap Fruitland and Pictured Cliffs development, rather than Mesaverde and Dakota. Such NSO areas should be more clearly identified and described. In any event, Commenter understands the number of such wells is an estimate based on and consistent with the RFDS, rather than an identification of any particular well or location. If that is not the case, the particular locations that would be inaccessible due to NSO should be particularly described.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The comment is correct. Well locations are not precisely identified in the RFDS. Formation objectives accessible by directional drilling correspond to wells drilling to the Mesaverde/Dakota formations. Data were not available for accessing shallower formations such as the Fruitland and Pictured Cliffs. Although the number of target locations may be higher than the 28 associated with the NSO areas, an exact number is not possible to determine without precise location information and depths to the formations below the well site and the target.

Comment:

I heard from one person that, you know, maybe up to 90 percent of the resource could come out from these new technology wells, rather than putting them everywhere.

Darsi Olson

Response:

The use of alternative technologies is determined by many factors, including the physical characteristics of the formation and the economics. It is not always possible to drill to a formation and be able to produce it using an alternative technology. In addition, if the use of an alternative technology is possible, the additional cost of using such a technique may preclude its feasibility. The BLM can develop surface management prescriptions to encourage the use of alternative drilling techniques; however, it cannot mandate alternative technologies. The BLM cannot require an operator to use a particular method of drilling to access its leased minerals.

Comment:

The DEIS makes rosy assumptions about plugging and abandoning existing wells as a means of reducing existing impacts and mitigating the effect of the new impacts.

Mark Pearson, San Juan Citizens Alliance

Response:

The DEIS assumes that a certain number of wells will be plugged and abandoned each year over a 20-year period. This number will increase each year. The assumption is based upon FFO historical data.

Comment:

Because reclamation practices and other best management practices may reduce or (conceivably) eliminate impacts to water quality of implementing any of the alternatives, scrutiny of the reclamation procedures (primarily presented in Appendix G: Conditions of Approval) is warranted. None of the alternatives as described would alter the current reclamation practices. Appendix G provides a list of procedures that a producer must agree to carry out as a condition of the lease. That a reclaimed state be attained is not a requirement. For example, guidelines for stockpiling topsoil prior to construction and re spreading the topsoil on reclaimed portions of the well pad (p. G-1), and re seeding of the re spread topsoil (p. G-15) are provided, but there is no mention of criteria by which FFO can certify that the site has been reclaimed. A producer could potentially satisfy the requirements of FFO, and the reclaimed site could still be mostly barren or colonized by weeds. Although FFO may not be actively approving such reclamations, examples of well sites that have ostensibly been reclaimed, but are actually still quite disturbed, are abundant in the planning area under current management.

Gedi Cibas, NM Environment Department

Response:

Well sites and access roads that have been plugged and abandoned (P&A) have reclamation standards that must be met before being released for further liability and responsibility. A significant number of these locations remain on the books for various reasons, not the least of which is that these locations maybe practical sites for future infill development. Recent reorganization has created a compliance arm within the Environmental Protection Team. This emphasis on compliance seeks the following objectives: 1) To assure that all new and old development meets all conditions of approval. 2) Focuses emphasis of conditions of approval on existing infrastructure to bring this development to appropriate standards. 3) To utilize an interdisciplinary team of resource experts to assess the ecological condition of the reclaimed well locations and recommend appropriate action based on ecological health standards. 4) Review and clear the backlog on existing abandoned well locations. Oil and gas operators are required to post a bonds that ensures that each well that they drill has the funds available to properly abandon and reclaim the well and well site. The BLM ensures that the COAs that apply to reclamation are met by inspecting each well site prior to the release of the operator from bonding requirements.

Comment:

Some procedures found in the Conditions of Approval are disregarded by the producers and operators. For example, based on observations made by Surface Water Quality Bureau staff during reconnaissance for water quality survey work, the requirement that "drainage control shall be ensured over the entire road" is often disregarded. Quite often in the planning area, long stretches of road lie below grade and function as channels, accumulating large flows before discharging to gullies or arroyos. Similarly, the standard for location of access roads (p. G-13) that states, "surface disturbance and vehicular traffic will be limited to the approved location and approved access road" seems to often be disregarded. Many well sites have two or more access roads, when probably only one road was approved. Also, many intersections of roads are probably much larger than approved.

Gedi Cibas, NM Environment Department

Response:

The comment is noted. The BLM strives to enforce all of its STCs and COAs, which address the issues noted in the comment. It is difficult for the BLM to continuously monitor all roads throughout the basin considering the number of personnel it has available for enforcement. BLM roads are managed under provisions contained in the BLM "Gold Book" and BLM Manual 9113. In addition, the San Juan Basin Public Roads Committee, whose members include BLM and industry representatives, has developed bylaws that address road maintenance for collector roads in the basin.

Comment:

In addition, many of the base documents used by the BLM in preparation of the RMP/EIS are not available, so we cannot evaluate the scientific modeling used by the BLM. BR has taken the initiative to acquire the descriptions behind Alternative D, the Preferred Plan, as we are able to understand such descriptions, and has hired a mapping service to digitize the information. We have provided the maps to interested industry parties so they also can see the impact of the expanded restrictions to their leasehold and comment appropriately.

John Zent, Burlington Resources – San Juan Division

Response:

The comment is noted. The initiative taken by Burlington Resources provides valuable information to interested parties.

Comment:

The historic data gathered by the BLM states 54 percent of new wells are drilled on new locations, but 54 percent seems too high.

Gary Markestad, XTO Energy, Inc.
Thomas Mullins, Synergy Operating, LLC
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The historic data gathered by the BLM in support of this EIS is the source of the percentages. The data was compiled from the well files of the FFO.

Comment:

The percentage for new wellbores is inaccurate, because the dual completions were previously accounted for in the RFDS 25 percent reduction in well count.

Gary Markestad, XTO Energy, Inc.
Thomas Mullins, Synergy Operating, LLC
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The RFDS projected the total number of available completions at 16,615. This projected number was reduced by 20 percent to account for federal jurisdictional lands in the RMP and further reduced by 25 percent to account for dual and commingled completions in a common wellbore. This leaves 9,970 potential wellbores to be drilled over the next 20 years. The DRMP estimated that new surface disturbance would take place on 54 percent of all new wellbores. The remaining wellbores, or 46 percent, would be co-located on existing well sites reducing the overall surface disturbance. These estimates were based on historical development trends and FFO personnel input. The percentage of new wellbores causing new surface disturbance is inaccurate because the dual and commingled completions were previously accounted for in the RFDS 25 percent reduction in well count. While it is true that the projected number of wellbores of 9,970 factored in the anticipated dual and commingled completions, the 25 percent reduction in well count was based only the projected completions from the RFDS. For example, one new Dakota-Mesaverde commingled wellbore takes up two completions from the projected well completion count; this same wellbore could be co-located on an existing well site or conversely, require new disturbance in order to be drilled. Historical data suggests that this situation will occur 46 percent and 54 percent of time respectively.

Comment:

Environmental Consequences: The assumption of one acre of surface disturbance constructed for a road and pipeline, appears to be in error. The statement that "An average of 800 feet of road and pipeline would be constructed within the same 50-foot wide disturbed area," calculates to a surface disturbance of only 40,000 square feet or only 0.817 acres. This assumption would overstate the impact associated with new road and pipeline construction by almost nine (9) percent. Commenter believes that in order to be technically consistent with the assumptions indicated in the planning document, the road and pipeline disturbance figures throughout the document should be lowered by eight-point-eight (8.8) percentage points, thereby lowering the final long-term net disturbed acreage amount relating to new well locations from 3 acres to 2.817 acres. This would result in a significant reduction in the lands calculated to be disturbed by new oil and gas development. The assumption of 3.5 acres of initial surface disturbance per new well location is in error. More credit should be given to new state of art technology for drilling, including slant, horizontal and other drilling techniques that would reduce surface disturbance.

Thomas Mullins, Synergy Operating, LLC

Response:

The figures used in the RMP/EIS and in the RFDS are intended as averages . . . They are based upon historical data, GIS coverages, and operator input. If the amount of residual disturbance created by roads and pipelines is reduced from an average of 1 acre to an average of 0.91 acres, as suggested by the comment, the amount of surface caused by the well pad and road/pipeline would decrease from the average of 3 acres to 2.9 acres, a decrease of about 3.3 percent. This amount of variance lies within a reasonable deviation when discussing averages. The well numbers and percentage of wells that would be constructed on new well pads already take into account possible new technologies including directional drilling.

Comment:

With regard to the RFDS prepared by New Mexico Tech, the surface disturbance assumption utilized by the RFDS was two (2) acres in size, with an additional one (1) acre (800' x 50') for road and pipeline disturbance. No provision was made for the reclamation and restoration of the reserve pit area in this document (RFDS). The RMP-EIS may have overestimated the final disturbed area associated with new oil and gas well locations, since it appears that an additional 1.5 acres of disturbed land was added to the typical well site location, and then removed, to account for the portion of land reclaimed after the initial drilling and completion phase of operations. The 2-acre initial drill site location should be reduced to 1 acre of final surface disturbance based upon reclamation of the reserve pit area. Commenter requests a detailed presentation of the assumptions regarding the acreage allocated toward surface disturbance by new well locations and its variance from other supporting documentation. Changes to calculations affecting watersheds and erosion should also occur based upon this reduction in surface disturbance.

Glenna Barnes
Thomas Mullins, Synergy Operating, LLC

Response:

The average figures used in the RFDS to describe surface disturbance correspond to the figures used in the RMP/EIS. The 2-acre assumption for well pad disturbance used in the RFDS incorporated the amount of land used for the reserve pit, which was estimated to be about 1.5 acres with an original pad size of 3.5 acres in the RMP/EIS.

Comment:

It is thought that the reserve pit reseeding and reclamation efforts currently practiced by industry, adequately managed by the BLM, will result in minimal soil erosion and damage to watersheds. The final surface disturbance numbers should be utilized throughout the RMP-EIS analysis in place of the initial surface disturbance numbers, and reflected in each of the appropriate tables throughout the document.

Thomas Mullins, Synergy Operating, LLC

Response:

The comment is noted. Initial and final surface disturbance figures are noted throughout the EIS where appropriate.

Comment:

Commenter adamantly disagrees with the conclusion that closing lands to leasing in the Preferred Alternative will have little impact on mineral extraction because 99 percent of the high development area is currently leased.

Bruce Policky, BP America Production Company
John Zent, Burlington Resources – San Juan Division

Response:

The BLM is obligated to analyze the consequences of actions that it may take to protect the resources under its administration. The FFO has determined that the closure of tracts of land specified in the EIS to leasing would result in the protection necessary to ensure the viability of inherent resources other than mineral resources in those areas.

Comment:

BLM is discouraged from adding regulatory reporting requirements for these efforts, since current regulatory reporting requirements are already onerous and burdensome.

Gary Markestad, XTO Energy, Inc.

Response:

The BLM's regulatory requirements are developed to ensure compliance with federal laws and to ensure that the resources under its administration are managed in a manner consistent with those laws.

Comment:

BLM, in its planning, should take into consideration that only a relatively small fraction of that acreage (approximately 0.5 percent and only 0.36 percent after revegetation under Alternative "D") would be disturbed, and the impacts on the total planning area from surface disturbance will be negligible.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The comment is noted. It is correct that just of small percentage of the planning area would be affected by the actions described in the EIS; however, the analysis of impacts does not depend strictly on statistics. Potential impacts require assessments as specific resources are affected. For example, an impact to a 5-acre site that contains protected resources would be more significant than to another 5-acre site that contains no protected resources.

Comment:

The number of wells identified in the RMP/EIS is an estimate based on current New Mexico Oil Conservation Division ("NMOCD") spacing rules and identified producing horizons. Changes by the NMOCD could increase the total number of wells. Some new formations that could produce were not counted in the projected well numbers in the RMP/EIS.

Gary Markestad, XTO Energy, Inc.
Thomas Mullins, Synergy Operating, LLC
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The number of wells projected in the RMP/EIS is based upon the RFDS, which anticipated changes in spacing rules for specific formations. NM Tech in the RFDS used information from industry, geology, and historic production to develop the projected well numbers. Changes in spacing could result from reservoir characteristics and estimated reserves remaining in place. The RFDS attempted to account for future wells for these formations using the data it had and assuming that spacing may be downsized.

Comment:

Page 2-2, Column 1. The reference to a "50 foot right-of-way" should be removed, because it may reflect only a temporary, short-term construction program. Generally, the post pipeline and road construction disturbance is only about 16 feet in width.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company

Response:

When a right-of-way is granted, it is assumed that the full width of the ROW may be used at any point in the term of the ROW. Although the full width of any particular ROW may not be utilized, and would not result in surface disturbance across the entire width, the grant allows for such disturbance. Therefore, use of the entire width of a ROW is a conservative estimate of disturbance.

Comment:

Page 4-13. The first sentence of the second full paragraph in column 11 should address the possibility of using produced water in drilling operations and how BLM could encourage this practice.

Gary Markestad, XTO Energy, Inc.

Response:

The use of produced water for drilling operations depends upon, among other factors, the physical characteristics of the formations through which the well is drilled and the chemical characteristics of the water. The decision to use produced water, if feasible, would be made on a well-specific basis.

Comment:

The Preferred Alternative ("PA") will increase the total number of acres subject to a split of mineral and surface estates. BLM should encourage keeping whole the interests of current mineral lessees.

Deborah Seligman, NM Oil and Gas Association

Response:

The BLM recognizes that there are many difficulties associated with split estates. The BLM has attempted to minimize the creation of split estate properties. Split estates were addressed in Alternative D in order to distinguish it more readily from the other alternatives.

Comment:

The RMP/EIS assumes that, under the PA, there will be 145 directional wells drilled to access oil and gas. This assumption appears to be for the deeper horizon Mesaverde and Dakota wells. If the shallower horizons, Fruitland or Pictured Cliffs, are not accessible from vertical drilling, the percentage of unrecovered reserves will increase from that estimate. Also, the RMP/EIS states that 145 directional wells "would" be drilled. As a result, this language should be changed in a manner consistent with statutory and regulatory authority, to "could be drilled, subject to economic and technological considerations," since a decision whether to drill is always made on this basis.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

The language in the text of the EIS is changed as suggested. The determination of numbers of directional wells was based on averages and was broadly applied to the entire high development area, while recognizing that formations, terrain, and other factors would come into play in the actual decision by industry on how to extract the mineral resource. The averages applied were necessary to do an overall impact analysis.

Comment:

Page 4-13: The first sentence of the second full paragraph in column II should say, "All water produced in association with oil and gas production and Fruitland CBM production should be transported via truck or pipelines to an injection well or evaporation ponds for disposal."

Deborah Seligman, NM Oil and Gas Association

Response:

The use of the phrase "would be transported" is correct. The sentence is meant to be a statement of intent.

Comment:

Page 4-103: Replace the word "should" in the first sentence of the "Oil and Gas Leasing and Development" section be replaced with "could." "The amount of long-term vegetation disturbance within the planning area for new wells, roads, pipelines, and compressors on public land could be almost 32,000 acres."

Deborah Seligman, NM Oil and Gas Association

Response:

The comment is noted. The text is changed from "should" to "could."

Comment:

Pictured Cliffs – 80-Acre: It is thought that the RMP-EIS should consider the implications of 80-acre or reduced spacing for the Pictured Cliffs. RFDS indicates that the Pictured Cliffs appears to be draining 104 acres on average across the SJB (RFDS, Pg 6-12). This would indicate that the current 160-acre Pictured Cliffs spacing may be inadequate, and is probably inadequate in many areas within the planning area. Further evidence of potential reduction in spacing for the Pictured Cliffs, if not on 80-acre spacing but rather 120-acre spacing, is detailed with the bibliography to the RFDS. "Engineering evidence DOES NOT support the widespread potential for 80-acre development of the Pictured Cliffs reservoir AT THIS TIME" (RFDS), but may right now because of new information. With regard to possible 80-acre infill Pictured Cliffs development, please explain in numeric detail the probability of 80-acre Pictured Cliffs development upon both a recompletion basis (commingling), and a new drill basis? A NMOCD application (Case 12857) was presented by Burlington Resources, et al., on May 2, 2002, with regard to a thirty (30)-well pilot 80-Acre Pictured Cliffs project within the Planned RMP-EIS area. A NMOCD application (Case 12892) was presented by Mallon Oil Company on July 11, 2002, with regard to a twenty five (25)-well pilot 80-Acre Pictured Cliffs Pilot project on the border of the RMP-EIS planned area. Other industry representatives have expressed interest in evaluating this formation in a reduced spacing manner. The current Draft RMP-EIS has not considered the likely reduction in Pictured Cliffs development as part of one or any of the Alternatives to the RMP-EIS. A multiplier could be used in conjunction with review of the available 80-acre drill site locations within the RFDS, to determine the additional number of new Pictured Cliffs wells associated with spacing reduction to the RMP EIS. Language would need to be added to the RMP-EIS (Pg. 3-12 and Pg. 2-29) to reflect the consideration of the Pictured Cliffs for reduced development. To determine that all new Pictured Cliffs development potentially associated with reduced spacing would be developed through recompletions of existing wells would be inaccurate in our opinion.

Thomas Mullins, Synergy Operating, LLC

Response:

The DEIS was based upon the results of the RFDS and did not consider 80-acre spacing for the Pictured Cliffs. Although the RFDS acknowledged the possibility that the spacing for the Pictured Cliffs formation could be reduced, New Mexico Tech, author of the RFDS, considered that this possibility is not imminent. The object of the RFDS is to provide a "reasonable" foreseeable development scenario using the data as it currently exists. Using the RFDS, the EIS is able to look at different management strategies for the surface. The RFDS did consider changes in spacing and infill drilling for formations where it seemed likely, such as for the Fruitland Coal. Reservoir characteristics, current spacing rules, projected spacing regulations, and methods of drilling and completion were used to determine the number of locations that would reasonably expected to be used to extract the mineral resource.

Comment:

There is disagreement with the assumption on SAIC 2002d, Pg 2-6, that there will be no commingling of production under Alternative A. This is a significant assumption in that it has the effect of greatly expanding the quantity of acreage associated with surface disturbance. This in turn does an injustice to the calculations for Alternatives B, C, and D as it appears in relation to Alternative A throughout the RMP-EIS. Alternative A should clearly represent the current development practices, current land use, current biological use, and current practices by all users of public lands. Some proponents to oil and gas development often use numbers associated with these alternatives in a liberal manner to promote their positions. Commenter requests that typical historical percentages regarding recompletion and commingling of production, in conjunction with the recent RFDS industry survey, be applied to Alternative A and Alternative B in both the RMP-EIS and (SAIC 2002d). Alternative B is often utilized as a worse case "Big Oil" industry development scenario, which should rather represent a realistic industry development scenario as mentioned previously.

Thomas Mullins, Synergy Operating, LLC

Response:

Alternative A, the No Action alternative, is an option that is required by NEPA for inclusion in the analysis of alternatives in an EIS. This alternative assumes that there are no changes to current management guidance by the BLM and/or the other participating management agencies.

Comment:

With regard to the "estimation" of surface disturbance in finished size at 2 acres, Commenter requests a reference be placed upon this statement, so that it may be tied to the relevant area of this document or another document where this is discussed further.

Thomas Mullins, Synergy Operating, LLC

Response:

The 2-acre estimate of final surface disturbance associated with a typical well in the basin was determined by the BLM in consultation with industry representatives.

Comment:

Environmental Assumptions and Analysis. There is an indication of a certain quantity of locations "backlog" that are awaiting field review and approval for final abandonment by the FFO. This number of locations and the associated acreage should be evaluated, quantified, and included in the net disturbed acreage, and that this amount of acreage be removed from calculations for the RMP-EIS net disturbed area. Specifically, this can be readily used to validate the assumptions of 3 acres per abandoned location of reclaimed land (2 acres for the well site, 1 acre for the pipeline and road). Given the small amount of net disturbed acreage anticipated at the end of 20 yrs associated with planned oil and gas development anticipated in the RMP-EIS, excluding this acreage from the final calculations may significantly impact the final resultant numbers. The AFO should be consulted to determine the quantity and "backlog" associated with abandoned well locations within its jurisdiction. These AFO numbers should also be included in the net disturbed area calculations. In relation to the above question regarding P&A wells, please explain the reasoning behind the statement, "Once the P&A wells are taken into account over the 20-year period, there would be no net increase in surface disturbance, and possibly a decrease." This statement clearly demonstrates that there is likely to be no new net surface disturbance under Alternative A. Once consideration is given that under the assumptions of Alternative A, that no new wells will be commingled, doesn't this imply that there will actually be no new net surface disturbance associated under Alternative A? This same question should be answered of the other alternatives listed when consideration is made regarding net surface disturbance credit associated with the P&A wells.

Thomas Mullins, Synergy Operating, LLC

Response:

The amount of disturbed land surface waiting for field review and approval of final abandonment was not included in the total amount of reclaimed acreage because this amount has been relatively static over a period of time. To assume that sufficient funding and personnel were available at some point in time in order to remove this amount of disturbed land from the total is speculative. The figure of 133 well pads per year during the first year, increasing at 5 percent per year thereafter was a reasonable assumption provided by the FFO. Total figures provided by the FFO that are applicable to BLM surface also include lands managed by the AFO. Under Alternative A, a result of “no new surface area” would result from reclamation of an additional 311 well pads associated with 934 acres over a 20-year period. Whatever the amount of residual disturbed acreage that consists of the “backlog,” that number would remain constant over each of the alternatives. Assume that the backlog consists of 311 well pads. It is apparent from the amount of net amount of surface disturbance listed in Table 4-1 that a decrease of 934 acres under each alternative would result in decreases of the total amount ranging from approximately 4 to 6 percent.

Comment:

With regard to the RFD, and the Results of the Industry Survey detailed in Chapter 7 of the RFD: What impact on the RMP-EIS calculations and results would occur if industry drills and completes 59.5 percent of its new well locations as commingled and/or dual producers, rather than the 25 percent assumed as part of the RMP-EIS plan? This industry-volunteered information is significantly different than the assumed 25 percent or 54 percent values discussed. Industry recognizes that economics drive development activity. Economics indicate that the industry will continue to develop new oil and gas reserves through commingled completions and a dual completion basis. (RFDS). Industry will drill greater than 25 percent of future wells in a commingled or dual development scenario and a more accurate assumption for the RMP-EIS would be to assume a 30 percent reduction in new wells because of the use of commingling and dual completion of new wells.

Thomas Mullins, Synergy Operating, LLC

Response:

The assumption that 25 percent of new wells would consist of commingled/dual completions reflects BL input from the oil and gas industry. Although future economics may not encourage oil and gas operations consistent with this assumption, it reflects a substantiated conservative point of view.

Comment:

We are especially concerned about the impact of the 805 miles of new roads, and the amount of land affected by well pads, compressors, and other facilities. The erosion, waterway situation, and air pollution, because of the soil character and climate, are also major concerns during and after development.

David Weingarten, NM Wildlife Federation

Response:

Environmental impacts will occur as a result of the implementation of any of the alternatives, including Alternative A. Adverse environmental impacts will result from oil and gas development. The extents to which the impacts will occur are detailed in the analyses of each alternative. As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

Alternative D, your "Preferred Alternative," the "Balanced Approach," is anything but balanced. Throughout the entire document, you list drawbacks to Alternative D: degraded air quality, weeds and dust, no re-vegetation, soil erosion, habitat fragmentation, 805 more miles of road, vandalism, and no wilderness buffers.

David Peters

Response:

Environmental impacts will occur as a result of the implementation of any of the alternatives, including Alternative A. Adverse environmental impacts will result from oil and gas development. The extents to which the impacts will occur are detailed in the analyses of each alternative. As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

May I suggest a more moderate approach? One that preserves our air and water quality, as well as wildlife. One that allows us to use our federal land to recreate like we want and need to, without being assaulted by noise, vehicles, roads, dust, and erosion.

David Peters

Response:

The comment is noted.

Comment:

This claim of "takings" apparently underlies the "need" for 12,461 new wells in BLM's estimation. However, the DEIS never discloses, discusses, or analyzes its obligations to provide for additional wells on existing leases that have already been developed. BLM staff and industry personnel have reported that additional wells are not needed to extract additional gas. This past summer, the New Mexico Oil Conservation Division (OCD) met in Farmington to hear the gas industry's arguments for moving to 160-acre spacing for wells in the Fruitland coal formation. During the hearing, Phillips argued that there is insufficient evidence to justify going to 160-acre spacing in the "fairway." The fairway is that part of the Fruitland formation in Colorado and New Mexico where gas wells are producing more than 2 million cubic feet per day. Phillips contends that in most of this area, wells are already draining more than 320 acres, and thus, there is no need for closer spacing. Burlington and BP hotly disputed this contention, saying that the 160-acre spacing is necessary to efficiently drain the resource. Clearly, there is no consensus among industry about the "need" for additional wells. The DEIS must disclose to the public persuasive evidence about the need for 12,461 new wellbores. If the primary rationale is to simply extract gas faster, and not because of conservation reasons to extract more gas, then BLM must balance this desire against competing multiple uses such as protection of air quality, wildlife habitat, cultural resources, and others.

Mark Pearson, San Juan Citizens Alliance

Response:

The BLM does not take a position regarding the need for additional wells. The BLM manages the resources of the lands it administers for multiple uses under FLPMA. The idea of multiple uses includes consideration of the land's inherent natural resources, including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner.

Comment:

Since 1992, the BLM and other agencies have discovered numerous, serious environmental impacts specific to development of coalbed methane. The unique environmental impacts of CBM development, according to the BLM's San Juan Field Office and government documents, such as "Coalbed Methane Development in the Northern San Juan Basin of Colorado: A Brief History and Environmental Observations," a working document compiled by BLM, San Juan Field Office, December 1999, include: methane seepage which can kill large swaths of vegetation such as has occurred in the pinyon-juniper woodlands of the Soda Springs area on the Southern Ute Indian Reservation; dewatering of coal seams with a resultant lowering of water tables; coalbed fires created by the dewatering of coal seams; coalbed methane migration into domestic water aquifers. To comply with the requirements of NEPA for full disclosure of anticipated environmental impacts from the proposed action, BLM needs to revise the DEIS to incorporate analysis associated with these impacts specific to CBM wells. We also incorporate by reference the comments submitted by Walter R. Merschat on these and similar topics.

Mark Pearson, San Juan Citizens Alliance

Response:

The comment is noted. A section has been added to the EIS that describes the procedures used in drilling and producing coal bed methane in the San Juan Basin and broadly addresses the issues raised in this comment.

Comment:

The DEIS generally fails to analyze the impacts from hydraulic fracturing. The words apparently do not appear in the DEIS. CBM operators in the San Juan Basin typically hydraulically fracture coal seams to stimulate production. Fluids in fracing include guar gel, nitrogen or carbon dioxide gases, gelled oil, diesel oil, sodium hydroxide, hydrochloric acid, sulfuric acid, funeric acid, and a host of other toxins.

Mark Pearson, San Juan Citizens Alliance
Bruce Policky, BP America Production Company

Response:

The comment is noted. A section has been added to the EIS that describes the procedures used in drilling and producing oil and gas in the San Juan Basin and broadly addresses the issues raised in this comment. The purpose of the EIS is not to analyze every aspect of oil and gas operations, including CBM operations that may occur in the basin. It is not realistically possible to do so. All oil and gas operations are approved by and monitored by the appropriate surface management agency and the BLM. Operators are required to report abnormal conditions that may affect the environment to the appropriate agency immediately, or as specified by agency regulations.

Comment:

Federal toxic waste laws include a small exemption for drilling fluids for the oil and gas industry; however, this does not excuse BLM from analyzing their impacts, requiring an inventory of fluids and chemicals used, reporting spills, and mitigating these impacts under FLPMA and NEPA. Examples include: glycol used in gas treators and dehydrators, drilling fluids and muds, and chemicals and toxins, used in hydraulic fracturing. All operators have a duty to keep and submit well records and reports covering production facilities and equipment, drilling, redrilling, and deepening. (43 CFR. § 3162.4-1[a]). Further, operators "shall" report all spills or leakages of oil, gas, produced water, toxic liquids, or waste materials to BLM. (This is also covered and required in NTL 3A). We insist that BLM not only enforce these regulations, but also make them available to the public, particularly where private surface is involved.

Mark Pearson, San Juan Citizens Alliance

Response:

The comment is noted. The content of the comment expresses a valid concern. All oil and gas operations conducted in the Study Area are subject to the laws and regulations listed in the comment, in addition to other required procedures. As the management agency for oil and gas operations on federal lands in the basin, the BLM must enforce all applicable laws and regulations as they apply to both federal and private surface.

Comment:

This document proposes to add almost 190,000 acres to special management areas that will constrict the use of the property within those areas, through the use of conditions of approval attached to applications for permits to drill. In as much as there are valid contracts that were in existence prior to this document, any changes to the existing oil and gas leases should not alter the original terms and conditions of the existing agreements. Alternatively, the confiscation of citizen's rights will occur. Rather than materially alter the pre-existing rights of any party, and thereby make the use of the land difficult or uneconomic to develop, which may constitute a taking, the BLM should be prepared to pay the fair market value for any property whose use would be severely limited.

Gary Brink, Energen Resources Corporation
Carolyn Dunmire, Ecos Consulting

Response:

Terms and conditions associated with existing leases will not be altered as result of the implementation of any of the alternatives in this EIS.

Comment:

This beautiful, xeric area is a fragile and precious environ to many plants, animals, and even people. Its value is often overlooked due to its quietness, aridness, subtle beauty, and starkness. Having spent time in this region, I know of its immense beauty and pristine air. Yet, this plan will devastate the area with dirty, polluted air, 805 miles of roads which will dismember habitats, and damaging dust from the 44,000 acres of the proposed development. What about usage and damage to the water table?

Marci Garton

Response:

Environmental impacts will occur as a result of the implementation of any of the alternatives, including Alternative A. Adverse environmental impacts will result from oil and gas development. The extents to which the impacts will occur are detailed in the analyses of each alternative. As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

You intend to allow 805 miles of roads to be constructed, dismembering the habitat of numerous species, tearing up fragile desert plant communities, and degrading the air quality, as well as creating the probability of damaging dust storms from the 44,000 affected acres.

Jan Garton

Response:

BLM operates in accordance with FLPMA, which mandates that the BLM consider multiple uses for the lands it administers. This concept includes consideration of the land's inherent natural resources including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner. This EIS examines the impacts of the four alternatives to each resource area individually and in combination. The document cannot, however, address the effects to "life quality" issues because its consideration is inherently subjective. Actions that result in a loss to quality of living for one person may be inconsequential to another person. As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

The wells, and the associated development they would bring to the region, which includes 805 miles of new roads across more than 44,000 acres, would completely destroy the air, water, soils, wildlife, and quality of life in the area.

Susan Wible

Response:

BLM operates in accordance with FLPMA, which mandates that the BLM consider multiple uses for the lands it administers. This concept includes consideration of the land's inherent natural resources including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner. This EIS examines the impacts of the four alternatives to each resource area individually and in combination. The document cannot, however, address the effects to "life quality" issues because its consideration is inherently subjective. Actions that result in a loss to quality of living for one person may be inconsequential to another person. As stated in Chapter 2 of the EIS, the FFO is conducting an inventory of the existing road system to identify major collector roads that will serve as the backbone of its road network. After that analysis is complete, all levels of roads within the system will be classified based on traffic levels, types of use, and condition, etc. Finally, restrictions, needs, and actions will be defined. The USFS is also completing a Roads Analysis Policy for the lands within its boundaries.

Comment:

Mr. Dugan has drilled more than 10 new well sites in the last 6 months, and is now connecting them with pipelines. Some of these well sites are within 150 feet of existing pads. WHY can't he use an existing pad for the new well? And why does a pipeline right of way take up to 55 feet of completely cleared land?

Keith Baker

Response:

There are a number of factors that determine the proximity of individual well pads to each other. These factors can include the spacing rules affecting the target formations, the offsets required to ensure that distinct wellbores do not interfere with each other, and topography of the surface. The width of a right of way is intended to allow for the installation of a pipeline or power lines or the construction of a road. The width provides an allowance for construction and maintenance operations that may require more space than the finished product. Rights-of-ways are required to be weed-free.

Comment:

Page 2-3; continuing paragraph, first column: Criteria are provided on how additional stipulations supplied by SMAs or surface owners could be incorporated into the APD process. These criteria include the ability to do so if it does not affect adjacent tribal lands, safety or conservation, or negate minimal federal restoration requirements for abandonment. New stipulations cannot be added to a lease. Further, conditions of approval must be consistent with valid existing lease rights. Conditions of approval that exceed existing lease terms must be negotiated with the lessee. Language acknowledging valid existing lease rights must be added to this discussion. Therefore, the sentence that begins "If a surface managing agency or surface owner has supplied to the BLM. " should have the following phrase added to the end of the sentence "and does not abrogate the original lease terms and conditions."

Bruce Policky, BP America Production Company

Response:

The comment is noted. Additional text has been added as suggested.

Comment:

Page 2-235: Chart at top of page; this chart contains a summary of the different types of management prescriptions derived from the Implementation of the proposed SDAs. If one evaluates all closures, CSU, NSO, and timing limitations, almost 27 percent of the FFO will be subject to these restrictions. In regards to the timing limitations that comprise almost ½ of the more restrictive management directive, this would force operators into conducting operations in a compressed timeframe causing seasonal fluctuations for both equipment and manpower. We would recommend this be assessed to fully understand the ramifications of the constrained operational timeframe.

Bruce Policky, BP America Production Company

Response:

Under Alternative D, approximately 2.6 million acres would be developed under STCs and 796,000 acres would be developed under CSU, NSO, and TL. The number of acres managed under restrictions consists of approximately 23 percent of the total. Approximately 60 percent of the acres managed under restrictions would be managed under TLs. The BLM understands that a greater amount of planning will be necessary to operate under these conditions. It should be remembered that TLs vary as to the natural resource that the restrictions are intended to protect. Not all TLs would occur concurrently.

Comment:

It is important to note that while existing locations could be used for new drill sites, many of the existing locations were designed for one well only. Consequently, it is likely that some additional surface disturbance will be needed to accommodate an additional well. The amount of new disturbance will vary depending upon the size of the original well pad and what will be needed for an additional well. We would recommend that this aspect be factored into how existing well pads will be used for additional development.

Bruce Policky, BP America Production Company

Response:

The additional surface disturbance necessary to drill a new well on an existing well pad was considered and added into the total amount of projected new surface disturbance. It was assumed in the EIS that an additional well on an existing well pad would require approximately 0.5 acre of new surface disturbance.

Comment:

Page 4-11, first column, second paragraph under "Soils". The second paragraph contains a list of impacts that could result from surface disturbance. As is common with this RMP, there is little discussion about mitigation that could be implemented to reduce impacts. In this section, nothing is mentioned about the new Phase II stormwater regulations that will soon be implemented after the beginning of 2003. These will apply to virtually all oil and gas activity and will require the use of BMPs (Best Management Practices) to reduce runoff and erosion of soils. This should be mentioned in this section and other subsequent discussion regarding soils.

Bruce Policky, BP America Production Company

Response:

Oil and gas operations will be regulated by Phase II stormwater regulations, as noted in the comment. Phase II regulations apply to surface disturbance greater than or equal to one acre in size. Best Management Practices have previously been incorporated into BLM COAs. Implementation of the Phase II regulations adds a regulatory layer of guidance on surface disturbing activities. BLM COAs will not conflict with regulations included under Phase II.

Comment:

The second full paragraph, dealing with disposal of produced Fruitland CBM water, should be revised to state that "All water produced in association with oil and gas production and Fruitland CBM production should be transported via truck or pipelines to an injection well or evaporation ponds for disposal." It should also be noted that BLM and industry are working on assessing alternatives that may be available to reuse the water subject to existing regulatory programs.

Bruce Policky, BP America Production Company

Response:

The comment is noted. The suggested text has been added.

Comment:

The RMP/EIS suggests possible employment of Controlled Surface Use ("CSU") and No Surface Occupancy ("NSO") constraints as mitigation measures in the "active floodplain of the Ephemeral Wash of the Riparian Area." To evaluate this option, BLM should define or describe the boundaries of that area.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

Under the Preferred Alternative, as shown in Table 2-5, Page 2-185, NSO would be implemented in the active floodplain as part of the alternative, not mitigation measures. The boundaries of Ephemeral Wash Riparian Area are delineated on Maps 2-10 and 2-11. The active floodplain is contained within the boundaries shown, but has not been mapped to the level that would enable display in the document. The location of wells would be determined during the APD process.

Comment:

Although all "disturbed" lands are considered damaged, at times, the disturbance is an enhancement providing new vegetation for native wildlife. Allowances for the positive aspects of change should be considered.

Gary Brink, Energen Resources Corporation

Response:

The addition of non-native vegetation or new seedings to replace native trees, grasses, shrubs, and forbs does not outweigh the impact of habitat fragmentation and the many areas of bare soil used for well pads and roads.

Comment:

The allowing of any future gas development will require new gathering lines, new transmission lines, and new productions facilities. Noise, which is not easily mitigated on an individual, well-by-well, or facility-by-facility basis, is not the only impact to private parties.

Jack Scott, City of Aztec

Response:

These impacts have been described under many of the surface resources in Chapter 4. Impacts to private landowners have been described under Cumulative Impacts in Chapter 4. BLM has therefore acknowledged the potential for impacts and has added a mitigation and monitoring section to describe how these impacts would be minimized as much as possible.

Comment:

Pages 4-4: Redisturbed surface is not included as area to be reclaimed. This has long been a practice under BLM leases. If the integrity of rangeland health is to be maintained, ANY disturbed area should be reclaimed. This should be stated in the RMP, and in all Permits-to-Drill.

Jennifer Truby, Truby Ranch

Response:

There are BLM guidelines for temporary as well as permanent reclamation of disturbed areas. This policy is part of Continuing Management Guidance. Additional staff recently added to the FFO will be used to assist in monitoring site reclamation.

Comment:

Page 1-9: Issue 1, Item 1 on this page identifies the question of whether additional federal mineral estate should be considered for oil and gas leasing. We urge BLM to clearly affirm that it should be. There is a significant need to develop oil and gas resources in order to minimize reliance on foreign sources and to provide energy, price stability and economic benefits to the region.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Two SDAs, Simon and Thomas Canyons, contain some unleased acreage that is planned to continue to be designated as closed to leasing, as it is under current management. Most of the other SDAs that are closed to leasing are outside the high development area, so little impact on oil and gas would result.

Comment:

All current NTLs issued by the State Director should be incorporated into the RMP, by reference. Any changes to existing NTLs should be identified and justified.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Comment is noted. As described on Page 2-2, NTLs are intended to address specific field or area conditions. They do not need to be addressed during the RMP process.

Comment:

The P&A rate is overestimated.

Carolyn Dunmire, Ecos Consulting
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The assumptions that were used in the development of the RFDS were based on historical data. A projected development scenario was based on that data. Data were acquired from both the BLM and operators in the San Juan basin. Using that data, assumptions were developed in order to bound the analysis and provide a baseline for the RFDS. The RFDS was used as a tool to determine impacts to the environment while varying land management strategies under four alternatives in the EIS. While it would be possible to perform the kind of analyses suggested by the comment, the result would be a significant and unmanageable increase in alternatives that must be analyzed in the EIS. Therefore, the BLM took the most reasonable approach available and directed New Mexico Tech to use the assumptions to limit the development scenario.

Comment:

The Draft RMP includes many issues that will require oil and gas development operators to spend money over and above that required under the current RMP. A few examples are the 145 wells that will require directional drilling (twice the 73 required under current operations); noise mitigation required by the proposed noise policy; and the significant expansion of lands (+456,926 Acres) subject to Controlled Surface Use (+128,196 Acres), Time Limitations (+288,641 Acres), Discretionary Closures (+27,789 Acres), and designated No Surface Occupancy (+12,305 Acres). A significant number of wells operated by Dugan Production are considered to be marginal or stripper, and thus are currently being operated on a fairly tight budget. Almost any additional expenditures will likely have a significant impact upon the operating economics of these low volume wells, and could result in the wells becoming uneconomic to operate. This will result in the loss of oil and gas resources, which will likely never be developed again.

John Roe, Dugan Production Corporation

Response:

Extraction of a mineral resource depends to a large extent on economic conditions. The BLM is not obligated to ensure that minerals extraction can take place regardless of economic conditions at any particular point in time. As economic conditions change, oil and gas production may become more or less favorable.

Comment:

The amount of horsepower in existing compressor stations was underestimated. This is important for determining whether air quality standards have not been exceeded.

Deborah Seligman, NM Oil and Gas Association

Response:

The estimates of existing and projected compression are based on the information in the RFDS, which was derived from industry input and data from the FFO. The RFDS is consistently used as a basis for information throughout the document because it is the best data available. While this was used as baseline information, the determination of whether air quality standards have been exceeded under existing conditions is based on the monitoring data from the 2 air quality monitoring stations operated by NMED/AQB in Farmington and Bloomfield.

Comment:

Many questions are absent from the RMP. Where do air borne pollutants go? How do temperature differences affect airflow? What pollutants are heavier and settle in the valleys where people live and work? What water contamination issues flow down from BLM land across private land into the water supply? Why are oil and gas wells allowed to be placed in areas the Federal Emergency Management Agency (FEMA) has identified as emanative flood hazard areas?

Evert Oldham

Response:

Many of these questions are addressed in the document. Airborne pollutants are taken into account in the current monitoring data and the modeling that predicts potential impacts. Without site-specific locations of new wells, roads, and other surface disturbance, the exact location and distribution of airborne and water borne pollutants cannot be predicted to the level requested. Oil and gas wells are not permitted within flood hazard areas (100-year floodplains) formally designated by FEMA, but there are few of these areas in the planning area.

Comment:

The RMP ignores the reality that the community's air and water is already in a state of distress. Not providing analysis of how the proposed actions layer on top of the existing problems borders on dishonesty.

Evert Oldham

Response:

All impact analyses started with the current conditions described under the Affected Environment sections in Chapter 3, then added in the project-related impacts in Chapter 4, as well as the description of cumulative impacts that adds in effects from reasonably foreseeable future actions.

Comment:

Two acres per well site overstates typical well site size, especially given the larger proportion of new wells, which will be relatively shallow Fruitland wells which use smaller pads.

Brian Wood, Permits West, Inc.

Response:

Two acres per well site were used as an average size for all new well pads, excluding those wells sites that are enlarged to accommodate new wells on existing sites. This is an average used to analyze impacts and compare alternatives that was developed from BLM historic data.

Comment:

The commenter adamantly disagrees with the conclusion that this will have little impact on mineral extraction because 99 percent of the high development area is currently leased.

Gary Markestad, XTO Energy, Inc.

Response:

The BLM is obligated to analyze the consequences of actions that it may take to protect the resources under its administration. The FFO has determined that the closure of tracts of land specified in the EIS to leasing would result in the protection necessary to ensure the viability of inherent resources other than mineral resources in those areas.

Comment:

The one noteworthy exception to use of the best available information in the DEIS is its reference to the published, scientific literature on the adverse effects of roads on the environment, particularly wildlife. In this area the DEIS demonstrates familiarity with the pertinent scientific literature that documents extensive adverse road impacts on wildlife. However, even after a review of previous scientific studies that suggest a high likelihood of significant adverse effects on wildlife, the DEIS concludes that only minimal effects are anticipated (see p. 4-30). Providing a thorough laundry list of the types of impacts expected to be generated by oil and gas development is necessary but, by itself, not sufficient for NEPA purposes. The extensive oil and gas development proposed under all Alternatives does not meet the agency requirement for environmental protection. In addition, the BLM is responsible for quantifying the magnitude of those impacts and proposing mitigation efforts.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

In addition, the mitigation measures established in the DRMP are considered appropriate and reasonable to reduce the impacts associated with oil and gas development.

Comment:

A large amount of oil and gas well development may occur on private lands. This is a critical point that deserves clarification because mitigation efforts will most likely occur only on federal lands. Thus, the vast majority of the potential adverse effects of oil and gas well development on wildlife will go unmitigated. Thus, they may represent permanent losses whose effects will accumulate overtime as additional habitat loss occurs in the San Juan Basin.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The amount of oil and gas development that may occur on non-federal land overlying federal minerals (described as split estate in the RMP/EIS) is included in all discussions of potential impacts in Chapter 4. The discussion of Cumulative Impacts in Chapter 4 addresses the additional wells that are projected to be developed on non-federal land overlying non-federal minerals. While the BLM has the responsibility and authority to mitigate surface impacts on public lands, it can assist and recommend mitigation measures to other landowners with federal minerals. There are other agencies that can and do assist private landowners in designing and implementing conservation measures that mitigate surface disturbance.

Comment:

I found no discussion in the DEIS about timing limitations on development activities that is, restrictions on activities during critical wildlife periods such as elk calving or raptor nesting Such restrictions are needed to temporarily put on hold activities that adversely affect recruitment into wild populations.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

See the management prescriptions in Tables 2-5 and 2-6 in the DRMP/EIS for the areas with timing limitations.

Comment:

The DEIS should clearly state the high uncertainty of reclamation success and the accompanying cost of failure to wildlife populations.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

This assumption is speculative and is not able to be documented.

Comment:

The BLM report, "Coalbed Methane Development in the Northern San Juan Basin of Colorado" (BLM 1999a), discusses the relationship between dewatering of the coal for gas production and the resultant venting and accumulation of explosive levels of methane at the surface. There is no mention of this venting or possible new venting caused by the additional CBM wells in the Draft Farmington RMP and EIS.

Walter Merschat, Scientific Geochemical Services

Response:

An overview of CBM operations in the San Juan Basin of northwestern New Mexico and the Powder River basin of central Wyoming has been added to the PRMP/FEIS. While venting of methane has not been documented as a problem in the planning area, the planned air quality monitoring efforts will collect information on all sources that affect air quality and mitigation measures will be planned accordingly.

Comment:

Furthermore, the BLM (BLM 1999b) has identified the entire CBM operation area of the Powder River Basin of Wyoming as an area of potential methane seepage and potential problems. The likelihood of the San Juan Basin of being of similar fate is real and the BLM needs to review this pending impact.

Walter Merschat, Scientific Geochemical Services

Response:

The production of CBM gas and the quantity and quality of water varies according to the physical nature of the gas reservoir and its hydrogeologic setting. Therefore, it is not necessarily appropriate to make direct comparisons. An overview of CBM operations in the San Juan basin of northwestern New Mexico and the Powder River Basin of central Wyoming has been added to the PRMP/FEIS. It includes a brief description of how CBM is formed and provides the basis examining why production operations may vary from play to play.

Comment:

The BLM Draft Farmington RMP and EIS fail to adequately cover methane seepage/venting along geologic pathways (faults, joints, etc.) as a result of depressurizing (dewatering) the coal and shallow sands. Several of these features (especially the Hogback Monocline) contribute to the structural framework that focuses methane seepage to the surface in the Colorado portion of the San Juan Basin near Durango, Colorado. This structural feature continues into the area covered by the Draft Farmington RMP and EIS, however, no mention of this appears in the text of the document.

Walter Merschat, Scientific Geochemical Services

Response:

The situation occurring in the northern part of the San Juan Basin does not generally occur within the planning area. Seeps along the Fruitland Formation outcrop have not been documented despite NMOCD investigations in the late '90s. The outcrop of the Fruitland Coal in New Mexico is actively being mined for coal along the outcrop which reduces the likelihood of methane seeps. Air quality monitoring efforts will collect information that affects air quality with appropriate mitigation measures planned accordingly.

Comment:

The Draft Farmington RMP & EIS (2-212) identifies numerous tracts of land suitable for coal mining that are proximal to CBM wells. The BLM needs to undertake a study to determine what effects a combination of CBM dewatering and coal mine activity will have on methane seepage/venting.

Walter Merschat, Scientific Geochemical Services

Response:

Comment is noted.

Comment:

Also, BLM (I999b) states that sands (stratigraphy) above the dewatered coals will also be dewatered through vertical continuity between the deeper coal and shallower sands thus affording a multitude of additional pathways for methane to migrate upward and laterally into shallow sands. Again, the BLM Draft Farmington RMP & EIS fails to discuss the widespread nature of the methane seepage potential.

Walter Merschat, Scientific Geochemical Services

Response:

The production of CBM gas varies according to the physical nature of the gas reservoir and its hydrogeologic setting. CBM wells producing from the Fruitland formation in the San Juan Basin produce, in general, less water than the average amount of water produced in association with CBM in the Powder River Basin in Wyoming, which is the location of study in the BLM 1999 report cited.

Comment:

By dewatering coals during CBM operations, coals near the surface (near the outcrop mines) can spontaneously ignite. The BLM Draft Farmington RMP & EIS neglects to address the significant and obvious areas of potential coal fires; the edges of the basin where the coal is shallowest and dewatering of the coal is quite acute. Lyman and Volkmer (2001) while discussing coal fires conclude by stating, "Nearly all the conditions for the self-ignition of coal are absent in the immediate vicinity of coalbed methane wells". This may be true, but Lyman's (2001) focus was on CBM well related fires and did not adequately address the most obvious areas for fires (due to dewatering), the basin edge (BLM 1999a).

Walter Merschat, Scientific Geochemical Services

Response:

The planning area is not at the edge of the San Juan Basin so the cited study is relevant and supports the FFO's contention that potential coal fires are not an issue of concern that should be addressed. This is not known to be a problem in the planning area. The situation occurring in the northern part of the San Juan Basin does not generally occur within the planning area. Seeps along the Fruitland Formation outcrop have not been documented despite NMOCD investigations in the late '90s. The outcrop of the Fruitland Coal in New Mexico is actively being mined for coal along the outcrop which reduces the likelihood of methane seeps. Air quality monitoring efforts will collect information that affects air quality with appropriate mitigation measures planned accordingly.

Comment:

The possibility of subsidence in the unconsolidated (overlying) sediments, as seen in Wyoming, is real. The Draft Farmington RMP & EIS fails to discuss this issue.

Walter Merschat, Scientific Geochemical Services

Response:

The production of CBM gas and the quantity and quality of water varies according to the physical nature of the gas reservoir and its hydrogeologic setting. Therefore, it is not appropriate to make direct comparisons. Many of the situations caused by the extraction of CBM in Wyoming do not occur in the San Juan Basin.

Comment:

The Preferred Alternative (Alternative D) removes four existing right-of-way windows (Page 2-148; Page 2-238) without any justification or rationale.

Douglas Campbell, PNM

Response:

The ROW windows in the FFO area were removed because they do not provide any additional management capability that would not be available through the overall management guidance for rights-of-way. The revised WRCS ROW corridors that have been incorporated into the management guidelines provide contiguous ROWs, instead of limited windows, and have been determined to be more advantageous to plan and implement.

Comment:

In Table 4-1, titled "Surface Disturbance Associated with Well Development under Each Alternative," please explain the variances in acreage associated with the "Surface disturbance associated with existing well pads (acres)." The existing disturbed area should be a known number throughout the document. Does this table relate strictly to "New" surface disturbances?

Thomas Mullins, Synergy Operating, LLC

Response:

The explanation of how the amount of surface disturbance was calculated for this table is located on the preceding page. It describes long-term surface disturbance that would occur as a result of expansion of existing well pads to co-locate wells. All acreage of surface disturbance in this table is new disturbance. This has been clarified in the PRMP/FEIS.

Comment:

Please detail or reference the 53,216 acres by both township, range, and section, and a map that will be closed to new leasing.

Thomas Mullins, Synergy Operating, LLC

Response:

The locations are within the SDAs that are listed as closed to new leasing in Table 2-5. More specific maps of each of these areas in included in Appendix N of the PRMP/FEIS in the FFO.

Comment:

Do the numbers reflected in Table 4-18 accurately reflect the entire surface disturbance (including road and pipeline disturbances)? How was the estimated 83,500 acres of existing surface disturbance confirmed as to its accuracy? BLM should undertake accurately reflecting the surface disturbances caused by all factors, not just oil and gas within the planned area.

Thomas Mullins, Synergy Operating, LLC

Response:

The numbers in Table 4-18 include acreage of surface disturbance from the projected new well pads, roads, and pipelines. The estimated acreage of existing surface disturbance was generated using the same assumptions of long-term average disturbed area per existing well, plus roads and pipelines that were used to project new surface disturbance so the calculations would be consistent. The data is useful in a relative sense to facilitate comparisons across alternatives and to enable consideration of non-federal wells also. Only oil and gas development was considered in this table because that is the issue addressed in this section.

Comment:

The DEIS falls to specify how many, or which, wells are conventional gas wells versus non-conventional coalbed methane (CBM) wells. The DEIS notes that about 50 percent of the gas produced in the Basin originates from CBM wells, from which one could reasonably conclude that over 6,000 of the 12,500 anticipated new gas wells could be CBM wells (DEIS at 3-9).

Mark Pearson, San Juan Citizens Alliance

Response:

Agreed. Some additional information on the development and operation of CBM wells in the planning area, compared to that in the Powder River Basin, has been added in an appendix of the PRMP/FEIS.

Comment:

Economic and operational feasibility and safety must be taken into account when determining the implementation of technological advances and regulatory changes to reduce the footprint of well pads.

Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

Site-specific decisions such as the technology to be employed for a particular well pad would be determined by BLM working with industry during the APD process.

Category: Recreation

Comment:

Conflicts between different users of the Glade Trail system are infrequent and does warrant restrictions.

Henry Gish

Response:

There is a large body of research that addresses conflicts between recreational user groups (see Appendix I). BLM will continue to work with local user groups to assess issues and find reasonable adjustments to existing restrictions.

Comment:

Dispersing recreation throughout the FO rather than focusing it into smaller areas would minimize impacts.

Terry Rust, Southwest Four Wheel Drive Association

Response:

Comment noted. BLM is still providing for and allows dispersed recreation. Specially designated recreation areas provide some protection or specification of activities in areas that have special values for recreation.

Comment:

Conflict between recreational users and other uses, and allegations of vandalism from open OHV access are not substantiated with data.

Derek Cooper

Response:

BLM has noted an increase in user conflicts over the last ten years as the population has increased and there are more people out recreating on public lands. BLM has the responsibility to manage the public lands for the protection of the resources, the promotion of safety and the minimization of conflicts among various uses. Appendix I contains a list of studies on OHV effects and on user conflicts in a recreational setting.

Comment:

The document is in error in only listing oil and gas compressors as having a noise impact on recreationists.

Bruce Policky, BP America Production Company

Response:

The BLM has considered OHV noise as an issue affecting other users and landowners. Table 2-3. Creates a ½ mile buffer in proximity to residences, unless on a maintained or designated road, or trail to reduce landowner conflicts with nearby OHV use. Also, except in high intensity areas, OHV noise is short-term with insignificant long-term impacts. Also see Pages 4-48,4-79,4-96 and 4-113. ATTN. SAIC: Text below found on Pg. 4-79 Noise OHV Use should be included with text for Noise OHV Use on pgs. 4-96 and 4-113. "Development of OHV management plans may identify trails and OHV open areas where noise would be generated. Proximity to existing sensitive receptors would be considered in identifying open areas in the future."

Comment:

Unlimited vehicular access contributes to widespread littering.

Carl Jess

Response:

The majority of littering on public lands is from illegal dumping in proximity to the major population centers. There is no data to suggest that one user group is more prone to littering than another.

Comment:

Aztec Trails should be included as a proposed trail in the Draft RMP/EIS.

Gail Aspromonte, City of Aztec

Response:

See Map 2-7: Proposed Recreational Use Trails for Alternatives B, C, and D on Page 2-222.

Comment:

Loss of access for recreational pursuits, such as hunting, should be considered in disposal actions.

Len Carpenter, Wildlife Management Institute

Response:

Before any disposal of public lands an environmental analysis would be completed analyzing other uses and values and the impacts to those uses from disposal of the parcel.

Category: RFDS

Comment:

The reasonable foreseeable development scenario, ultimate recovery of this field needs to be known so we can tell how many wells you need, how many you need close together so we can make decisions. The data you use for ultimate recovery is 1993 data, and it doesn't even include the Fruitland formation. It's junk.

Travis Stills, Citizens Oil & Gas Support

Response:

See the RFDS cited in the DRMP/EIS, "Oil and Gas Resource Development for the San Juan Basin" prepared by New Mexico Tech, Engler et. al., July 2001

Comment:

The RFDS omitted the potential impact of oil and natural gas prices on the rate of well development and production. Quantify the effects of higher levels of commingling, dual well completions, and alternative drilling technologies on well development and production rates. Quantify the effects of higher or lower gas production rates from Fruitland Coal wells.

Carolyn Dunmire, Ecos Consulting
Janine Fitzgerald

Response:

Drilling and producing oil and gas are driven by the need for the resource and by economic conditions. Some of the information requested in this comment is included in the report labeled SAIC 2002d, available at the FFO. The type of analyses described in the comments are beyond the scope of the RFDS. The object of the RFDS is to provide a "reasonable" development scenario using the data as it currently exists. Using this scenario, the EIS is able to look at different management strategies for the surface. The RFDS did not look at the rate of well drilling and production, as they are driven by the changing economics over time. It merely looked at what is available for drilling if conditions so permit. It was used as a tool for looking at different surface management options. Its purpose was not to quantify each possible development scenario as related to different well development and production rates as various economic scenarios may affect them.

Comment:

To complete the Reasonable Foreseeable Development Scenario (RFDS), the BLM contracted with professors at the New Mexico Institute of Mining and Technology to conduct a survey of the gas industry. The survey essentially asked companies how many potential locations are available for drilling, given the acres under lease and the spacing requirements (i.e., how many wells do you want to drill?). There is no consideration of the effects of oil and natural gas prices on field development, future production, employment, and regional economics.

Mark Pearson, San Juan Citizens Alliance

Response:

Potential locations were determined in the RFDS using spacing requirements and lands leased. The numbers are reflected in the EIS. Oil and gas operators have the right to drill every well available to them under applicable spacing rules. Economic conditions will determine whether drilling the number of wells available to them is economically feasible. The BLM manages the resources of the lands it administers for multiple uses under FLPMA. The idea of multiple uses includes consideration of the land's inherent natural resources, including its mineral resources. The purpose of the RMP is to manage all the field office resources in an environmentally responsible manner.

Comment:

We have concerns about the basis used in arriving at wellhead compressors totaling 12,118 and the amount of larger compression indicated. We believe the basis for these numbers should be reviewed.

Gary Brink, Energen Resources Corporation
Thomas Mullins, Synergy Operating, LLC
Bruce Policky, BP America Production Company

Response:

The amount of additional compression required to produce the projected new wells in the planning area was determined in consultation with industry representatives during development of the RFDS. This amount considered smaller and larger compression units needed to service wells during progressive stages of the life of a well and of the field as a whole.

Category: RMP/EIS

Comment:

Commenter has some reservations about the Preferred Alternative. As several of our comments indicate, NMOGA is concerned about the economic impact the RMP/EIS will have on our member companies, as well as the economy of the local area and the State of New Mexico. Although the Preferred Alternative provides for what seems to be an appropriate activity level for the next 20 years, there are two factors that may preclude reaching that level, namely: (1) the increase in size and number of Specially Designated Areas; and (2) numerous restrictive regulatory mechanisms (for example, the mitigation fund, noise controls, and air quality standards). NMOGA's support of the Preferred Alternative indicates our commitment to develop the oil and gas resource in an environmentally responsible manner. However, we trust the BLM, consistent with its statutory and regulatory guidance, will take into account the fact that our member companies must also do so in an economic manner.

Deborah Seligman, NM Oil and Gas Association

Response:

A comment is made concerning numerous restrictive regulatory mechanisms. The mitigation fund referenced is not a regulatory mechanism. It is voluntary. The current draft noise policy is a result of changes and suggestions from industry. It is now less restrictive than the old version. Air quality standards are regulated by the EPA with delegation to the NM Air Quality Bureau. Every effort must be made to avoid going into a non-attainment to avoid mandatory restrictions and regulation.

Comment:

Planning period, 20 years. How long is this project? Well, I don't know, it's not in the EIS, it's not in the reasonable foreseeable development scenario.

Travis Stills, Citizens Oil & Gas Support

Response:

This project, or this RMP, is intended to address the planning period of 20 years.

Comment:

No description of surface restrictions and mitigation alternatives is included in the Draft RMP.

Cheryl Eckhardt, National Park Service, Intermountain Region
David Wacker, Conoco, Inc.

Response:

Surface restrictions are documented in each alternative and in the list of management prescriptions in Tables 2-5 and 2-6. A section on mitigation measures has been added to the PRMP/FEIS to summarize mitigation measures mentioned throughout the document and to provide additional ones.

Comment:

The document incorporates Appendixes (D-Road Maintenance By-Laws, and G-Conditions of Approval) which consist of basic agreements and existing regulations that have been modified. The agreements and/or regulations, as they presently exist, should be used in the appendix, not modified forms of existing regulations and agreements.

Gary Brink, Energen Resources Corporation

Response:

The most recent version of the Road Maintenance Committee By-Laws have been inserted into the appendix for the PRMP/FEIS.

Comment:

Clarify the status of this NEPA analysis for all federal lands in the planning area. This should be the blueprint for decision-making by all federal agencies.

Donald DeCarlo, Devon Energy Corp.
Michael Lane, Williams Companies, Inc.
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

Each federal agency must comply with its own guidelines for NEPA analysis and authority for agency decision-making. While the USFS and USBR cooperated on this document for development of federal minerals, BLM issued the Notice of Intent and will issue the Record of Decision only for management of lands and minerals under its jurisdiction. BLM is responsible for downhole mineral management, and works with other surface managing entities where federal minerals are involved.

Comment:

Commenter recommends that the last sentence in the first full paragraph and the first sentence in the second full paragraph be revised for the purpose of clarity and accuracy. We suggest they be reworded to read: "If required, an EA that meets NEPA requirements is prepared to evaluate the potential impacts of the proposed change," and "When an EA is required prior to siting a new well, the EA shall utilize this RMP in its cumulative impact analysis."

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Comment is noted. This section is describing current and continuing BLM management guidance, which are not under consideration for change in this document. While it may be appropriate to tier off this EIS when developing EAs for siting new wells, it may not always be the case.

Comment:

The document is confusing and does not present specific and relevant information. The cultural resource data should be presented by topo quads or some other georeferenced system.

W. James Judge

Response:

This is a land use plan level document covering 8 million acres without site-specific knowledge of well and road locations to enable detailed analysis. Exact locations of cultural resources cannot be revealed in a public document. Watersheds are a valid unit of analysis for looking at resources distribution and other associated data.

Comment:

BLM should take care to ensure that applicable provisions of the 1988 Farmington RMP, as amended, are carried forward and incorporated into the revised Farmington RMP. The provisions of the 1998 Farmington RMP Amendment should be incorporated into the Final RMP revision.

Charles Roybal, BHP Billiton Limited

Response:

SJCC's Deep Lease coal mine that was presented in the ROD for the 1998 RMP Amendment would be carried forward under all alternatives. Under the Preferred Alternative, additional coal mining areas would be available and all land is listed as being available for consideration under the Lease by Application policy.

Comment:

I found no evidence that multiple use was the guiding principle in this plan, and sustained yields were focused primarily on the yields of natural gas, to the detriment of most of the other resources within the planning area. A more in-depth description of the multiple use principles used in this analysis would be informative and would allow the public a greater understanding of the parity that does or does not exist among the various resources within the analysis area.

Barry Rhea, Rhea Environmental Consulting

Response:

Multiple use management is one of the guiding principles employed by the BLM, which sometimes conflicts with sustained yields of all resources. This requires the professional judgment and management decisions by the BLM related to each local situation. The policies and guidelines cited in the document can be referenced for more in-depth descriptions of management requirements and principles.

Comment:

The Scope of the Document appears to cover lands administered by the USFS, the USBR, the BIA (Jicarilla Apache Indian Tribe lands), and the BLM Albuquerque and Farmington Field Offices. If in fact this RMP/EIS allows for surface impacts on the Carson National Forest (NF), other more thorough environmental analyses must be included in this RMP/EIS to address the different project assessment criteria for each land management agency.

Barry Rhea, Rhea Environmental Consulting

Response:

Actions to be analyzed in the RMP/EIS on lands in the planning area other than those managed by the FFO have been defined in Chapter 1 as only those related to the development of federal minerals. BLM responsibilities on Forest Service and USBR lands are limited to the downhole provisions. BLM works with the surface managing agency to obtain their requirements for management of surface resources. Other more thorough NEPA analyses are underway for some of the cooperating agencies. These would be required for the agency to develop its own Record of Decision regarding changes to surface management.

Comment:

The document is not readable or understandable by the public.

Heather Snow

Response:

An effort has been made to write the many technical issues and analyses in the RMP/EIS in terms as non-technical as possible. More technical information was provided in the supporting technical reports. It is often not possible to address the complex issues and impacts for all levels of readers.

Comment:

Our failure to achieve the goals listed in the 1988 RMP over the last 14 years is a result, as much of anything else, of being specific and failing to look at the big picture. I object to being required to comment on specifics of this document and not the whole situation.

Don Schreiber

Response:

The purpose of the instructions to provide specific comments are based on CEQ Regulations for Implementing NEPA, Section 1503.3, Specificity of comments. This section states that comments “shall be as specific as possible and may address either the adequacy of the statement or the merits of the alternatives discussed or both.”

Comment:

Incorporating specific provisions or programs by reference where the RMP/EIS refers to existing regulatory programs, would add a desired level of detail to the RMP/EIS.

Donald DeCarlo, Devon Energy Corp.

Response:

The descriptions and policies, manuals, handbooks, and regulations cited under Continuing Management Guidance in Chapter 2 incorporate specific information by reference.

Comment:

Page 3-21: It appears that the heading for the Navajo Reservoir Watershed has been inadvertently omitted in the second column, and should be inserted.

Donald DeCarlo, Devon Energy Corp.

Response:

The text has been corrected in the PRMP/FEIS.

Comment:

Create a second Draft RMP/EIS and ensure that other draft supporting documents are finalized prior to inclusion or reference.

Thomas Mullins, Synergy Operating, LLC

Response:

According to the BLM timeframe, a second draft cannot be accomplished, nor does the BLM believe that it is necessary. The technical reports prepared as supporting document are valid. Adding information to the Proposed RMP/Final EIS as a result of new data or additional analysis to respond to comments is a practice that is acceptable under NEPA.

Comment:

The Draft RMP/EIS is missing a reference to the Biological Assessment on Page 3-42. A proper public review of the Biological Assessment should be allowed as part of the comment period, as required in the NEPA process because the BA and the Biological Technical Report are instrumental in the creation of the various proposed Special Management Areas (SMAs).

Thomas Mullins, Synergy Operating, LLC

Response:

A citation for the BA, finalized in September 2002, has been added to the narrative. The BA was developed and submitted by the BLM to the USFWS in compliance with the Section 7 of the Endangered Species Act. It is not a NEPA requirement and does not undergo public review and comment. The Biological Resources Technical Report was created mainly for internal use by the BLM to provide supporting detail that was not practical to incorporate into the RMP/EIS.

Comment:

Requests for clarification: namely, clarification is requested with regard to the nine (9) references marked in the July 1988 RMP concerning those mandates to set standards and regulate development of public lands.

Don Schreiber

Response:

Standards and mandates have been incorporated by reference in the Draft RMP/EIS in most cases.

Comment:

Correspondence between the various maps is very poor. Maps are presented in different scales with few or inconsistent landmarks that would allow correlation between them. Specific comments were included by the commenter regarding some maps.

Mark Pearson, San Juan Citizens Alliance

Response:

Each map was designed to display specific information, resulting in selection of a scale and legend to accommodate the individual requirements of the text. All maps were intended to be accompanied by text that provides explanation. Specific comments were reviewed for each map to determine whether changes should be made.

Comment:

The RMP contains many references to restricting grazing activity. An RMP for grazing has already been completed. This plan should not include grazing activity, just as that plan did not contain references to energy development.

Jennifer Truby, Truby Ranch

Response:

Overall, there are few changes to grazing limitations. Grazing closures are used only in specific ACECs on limited acreage to minimize damage to significant cultural resources. The RMP must address all FFO programs to some extent, and the management prescriptions in proposed and carried over SDAs must be summarized in this document.

Comment:

Summary 3: The Minerals section on this page does provide a reference to the number of wells that will be drilled directionally and the number not accessible by NSO. The estimated number of wells should be provided to avoid confusion to the reader.

Bruce Policky, BP America Production Company

Response:

This information is provided in Chapters 2 in the narrative and in Table 4-1.

Comment:

Page 3-51, first column, first full paragraph: A sentence reads: "The NMAQB enforces air pollution regulations and set guidelines to attain and maintain the national and state ambient air quality standards within the State of New Mexico, except for tribal lands and Bernalillo County." It is suggested that this sentence be revised to read, "The NMAQB promulgates and enforces air pollution regulations to attain and maintain the national and state ambient air quality standards within the State of New Mexico. These are incorporated into the State Implementation Plan (SIP) and are approved by the EPA.

Bruce Policky, BP America Production Company

Response:

Comment is noted.

Comment:

The DRMP/EIS places a greater value on development of oil and gas and other mineral values than it does on true conservation. It fails to protect potential wilderness resource, fails to take protective measures against damage to public lands resulting from unconstrained ORV use, and fails to apply baseline mandates of the Multiple Use Sustained Yield Act with respect to oil and gas operations.

Cheryl Eckhardt, National Park Service, Intermountain Region
Michael Robinson, NM Wilderness Alliance

Response:

The BLM addresses multiple uses and plans for protection of multiple resources in the Farmington RMP/EIS. The BLM would not be able to drastically limit access to existing oil and gas lease rights without compensating the lessees, which would result in large payouts by the Federal Government and American tax payer. The majority of the FFO is currently leased for oil and gas development. OHV access, which was identified as an issue during scoping, has been proposed for a major change from an open designation to a limited designation over most of the FFO area (see Alternatives B, C, and D). The FFO currently manages 1 designated wilderness and 1 WSA. The Multiple Use and Sustained Yield Act is specific to the Department of Agriculture and does not apply to lands managed by the BLM. Any application of the act specific to oil and gas development on National Forest lands would be addressed by the Forest Service in their Oil and Gas EIS.

Comment:

The Final RMP should provide maps illustrating where the VRM classes are located.

Bruce Policky, BP America Production Company

Response:

The Final RMP will provide a map of VRM designations for the FFO. Proposed VRM designations for SDAs can be found in Table 2-5. See also Map 3-9 for a small scale map of existing VRM designations in the FFO.

Comment:

As it is currently written, the existing situation is not adequately defined or examined, and as a result, existing needs are not addressed in any of the alternatives. To assume that the existing situation is stable on watersheds, erosion, and damages, and develop alternatives based on that assumption when in fact the situation is deteriorating, will continue to damage the surface resources significantly.

Barry Rhea, Rhea Environmental Consulting

Response:

The description of the affected environment in Chapter 3 provides an overall characterization of existing conditions to the level of detail required for this land use plan document, using existing available data, as a basis for comparison with future actions. As described in many sections and evidenced by the impacts described under the No Action alternative, it was not assumed that the current situation is stable. Many impacts were identified that demonstrate impacts to watersheds, increases in erosion rates, and possible damages to resources. It was assumed that mitigation measures, described in the PRMP/Final EIS, will continue to be applied to minimize impacts, as they were designed to do.

Comment:

Appendix G should be identified as a general list of potential COAs that may be amended, waived, or specified to meet site-specific requirements. The comment includes detailed recommendations for changes to the wording of the text in Appendix G.

Bruce Policky, BP America Production Company

Response:

Appendix G is included in the document only as examples of the Conditions of Approval and Standard Terms and Conditions that may be used and to provide context to the information in the RMP/EIS. As explained in Chapter 2 under Continuing Management Guidance, each COA varies in its detail according to the site requirements and the findings of environmental and cultural resource surveys during the approval process. It also explains that these can change over time to comply with changes in policy, laws, and regulations. The documents in Appendix G are not under consideration for revision in this RMP/EIS.

Comment:

Page 2-3 contains a reference to the USFS cooperating with BLM to ensure that management goals and objectives are achieved. With that being the case, it would appear those portions of the RMP that apply to Forest Service lands, but administered by BLM (downhole provisions), would be applicable to the Carson National Forest. This same comment applies to the jurisdiction of the USBR lands in the vicinity of Navajo Reservoir found in the subsequent paragraph.

Gary Markestad, XTO Energy, Inc.
Thomas Mullins, Synergy Operating, LLC
John Zent, Burlington Resources – San Juan Division

Response:

BLM responsibilities on Forest Service and USBR lands are limited to the downhole provisions. BLM works with the surface managing agency to obtain their requirements for management of surface resources.

Comment:

Not enough consideration was given to quantifying and protecting environmental values. A truly appropriate alternative to the current proposals in the Draft EIS would describe current management practices and propose actions in the RMP "to restore, maintain, and enhance the quality of the environment."

Leslie Barnhart

Response:

Current management practices are described in Chapter 2 under Continuing Management Guidance, which briefly identifies the laws, policies, and guidelines that BLM follows to protect environmental resources. BLM believes that the actions proposed under Alternative D, the Preferred Alternative, comply with this guidance and allow for the development of mineral resources. A section on mitigation measures and monitoring efforts has been added to the PRMP/FEIS to more clearly explain the measures to be employed to minimize negative impacts to surface resources. Description of a new alternative that was considered has been added to Chapter 2 under the subtitle, "Alternatives Eliminated from Detailed Analysis."

Comment:

Pages 2-235-236: The paragraph on "Regulatory Changes" should be expanded to include both subsurface and surface commingling. The paragraph on "Offsite Mitigation" should be amended to recognize the voluntary nature of the program. In addition, the RMP/EIS should reflect that 70 percent of the voluntary funds are to be utilized for Range Land Health.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association

Response:

Commingling is not limited to subsurface in this section, although that results in the desired reduction in surface impacts so is of the most interest in this analysis. These sections are included as proposals under the Preferred Alternative. As such, they may change the existing nature of the programs, rather than continuing current practices.

Comment:

Most disappointing about the RMP is the absence of any proposal for adoption of modern environmental management systems (EMSs) to plan and administer the proposed action. EMSs are being adopted by business firms worldwide as procedures for systematically identifying environmental aspects and impacts of their operations; setting explicit goals for compliance, performance, and continuous improvement, and managing for them throughout these operations.

Evert Oldham

Response:

Environmental management systems that set standards for compliance, performance, and monitoring are built into the policies, standards, and guidelines developed and administered by the BLM. While it is true that the implementation and enforcement of these policies and standards have been variable in the FFO area, management has made a commitment to improve this part of the operation.

Comment:

The RMP is silent on known matters of non-compliance to certain water quality standards and warnings from officials that the community is on the verge of exceeding federal limits of ozone. Not only are these situations well known to the BLM, but BLM representatives have expressed in public meetings that they believe oil and gas activities on BLM lands are a primary contributor to the problems.

Evert Oldham

Response:

A discussion of the ozone limiting method and its potential influence on the impact conclusions has been added to both the FEIS and the Modeling Analysis Technical Report. Because NMAQB and EPA do not know the cause for the high levels of ozone, they will be collecting data and monitoring air quality to determine the causes, with cooperation from the BLM. While TMDLs for water quality have not been determined in the planning area, BLM has BMPs and other requirements for minimizing sedimentation from oil and gas operations as part of the COAs issued during the permitting process.

Comment:

The RMP has inadequately accessed the full extent of the adverse impacts to the surface, air, water, wildlife, multiple use, quiet enjoyment, and visual enjoyment of the subject lands.

Evert Oldham

Response:

Due to the land use planning nature of the RMP/EIS and available data, site-specific issues were not and could not be addressed. Regional resources, ecosystem management, and best available technologies were incorporated into one or more of the alternatives and their analysis.

Comment:

Appendix A – "Summary of Decisions Carried Forward from Previous Plans" should be expanded to provided summaries of the implementation of these programs, including the dates programs were initiated, when they will be completely implemented, and the successes/failures of the programs. How many years has it taken to implement 20 percent of a required (lands) program element? A Transportation Plan, including a road closure/rehabilitation element was part of previous FFO land use planning decisions, but was not implemented. An intensive woodlands inventory will be conducted, permits will be issues for research and collections, water quality control structures will be maintained, and a ground water quality monitoring program will be implemented. The public should know why these programs were not implemented if they were part of previous land use planning decisions, and how and when will these "new" programs will initiate.

Barry Rhea, Rhea Environmental Consulting

Response:

Implementation of Valid Decisions is often contingent on Congressional Budget appropriations. Implementation of lower priority programs or decisions can be influenced by the unpredictable nature of public demand workloads. This does not invalidate the need for these programs, but may delay their implementation. Prior decisions that are carried forward are usually those which need to be implemented on a continuing basis, those that are only partially completed, and those for which funding has not yet been received. Appendix A indicates, for example, that maintenance of existing water control structures is contingent on obtaining funding. A detailed description of the implementation history of each decision would add considerable text to the PRMP/EIS and would quickly be out dated. Information on progress toward implementing planning decisions will be published by the FFO in an annual planning update that will be available to the public.

Comment:

The key deficiency in the DEIS is that the exact location of oil and gas wells is currently unknown. As a result, it is impossible to reliably assess environmental impacts and to determine if the proposed activities under any of the alternatives are in complete compliance with environmental laws. Even if one assumes the area of direct disturbance to be constant, differing well locations across the landscape can have profoundly different effects on wildlife populations. It seems premature to develop an EIS at this time when full impacts cannot be adequately evaluated.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The RMP/EIS is intended to be a broad-scale, landscape level document that is required by regulation and policy in order for the BLM to revise their Resource Management Plan. It would be impossible for the BLM to site all new wells over the 20-year planning period, a step that would be required to complete the type of analysis desired by the commenter. The impact assessment provides guidance for possible effects to wildlife and other surface resources and clearly states that site-specific impacts would be assessed through environmental assessments and associated surveys once the exact location of proposed new wells, roads, or pipelines are known. The documentation of possible impacts to resources can also be used to help the BLM plan the types and extent of monitoring activities to help them build baseline data, identify impacts, and develop mitigation measures as part of the overall land management activities.

Comment:

The DEIS is notably devoid of reference to the peer reviewed scientific literature relevant to the environmental issues discussed NEPA requires that environmental assessments be based on the best available scientific information. The heavy reliance on the RFDS by Engler et al. 2001 is inadequate to meet this requirement. Credible information useful to the NEPA process should have undergone external, anonymous scientific peer review and be widely available to the public for their independent evaluation. Based on these criteria, the DEIS appears to be deficient and inadequate.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The RFDS was used as a basis for the projections on oil and gas development over the next 20 years in the New Mexico portion of the San Juan Basin. It was developed specifically for this project and, as such, uses the most up-to-date information that was designed for the planning area. The report was developed using information from the BLM, NMOCD, and industry. To assess impacts to surface resources caused by the expansion of oil and gas development, technical specialists used a combination of sources including the many references cited throughout the document and the local experience of BLM technical specialists who have been working in the area for many years. The peer review is part of the public comment period through which this commenter has participated. Through this effort, it has become clear that additional monitoring is needed, and these efforts are described in a new section in Chapter 4 called "Mitigation and Monitoring."

Comment:

In addition to the oil and gas projects discussed in the DEIS, other ongoing disturbances are occurring in the project area. All of these disturbances are changing habitat amount and distribution and have the potential to interact with oil and gas project activities in such a way that the collective effects are significantly greater than the sum of the individual affected areas. It is my understanding that federal agencies must consider all proposed development projects, not just those occurring on federal lands. Even though there is now an extensive scientific literature documenting the existence of significant cumulative impacts arising from multiple disturbance processes, no defensible cumulative effects analysis discussed in this DEIS.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The cumulative impacts section takes into account the surface disturbance and habitat fragmentation that would be caused by oil and gas development, as well as other foreseeable actions, on non-federal minerals and lands. However, without complete baseline data that would be needed to conduct the detailed analyses requested, further monitoring is needed to document the actual trends and determine appropriate mitigation measures, if needed.

Comment:

The overall format and verbiage of the document is difficult to read. The layperson will likely have difficulties understanding the document and distinguishing between the four given action alternatives and the associated impacts.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

The document follows guidelines for EISs provided by NEPA. There is a great deal of technical information in the document and an effort was made to describe the issues and impacts as clearly as possible, using non-technical language as much as possible, without making the document longer than necessary. The tables comparing the alternatives and associated impacts were presented to enable the reader to make comparisons.

Comment:

Highway 57 is no longer a "through access" highway across NPS/Chaco Culture 'NHP Lands needs to be updated/deleted as shown from all of the maps within the EIS.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

This was corrected where possible in the PRMP/FEIS.

Category: Road Management

Comment:

Appendix D does not provide the most recent version of the San Juan Basin Public Roads Maintenance Committee Agreement.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

Comment noted. Appendix D is updated in the Final EIS.

Comment:

There are already too many roads in the FFO.

Bill Day

Response:

Comment noted.

Comment:

A Roads Maintenance program between industry and USFS is already in place for the Jicarilla Ranger District since 1989. The EIS should provide definitions and more information about size and configuration of the different types of road (access, collector).

Thomas Mullins, Synergy Operating, LLC

Response:

Bureau roads are for use, development, protection, and administration of public lands and resources. They are classified as follows (BLM Manual 9113 and Gold Book): Collector Roads. These roads are normally provide primary access to large blocks of land and connect with or are extensions of a public road system. These roads are usually double-lane, graded, drained, and surfaced, with a 20- to 24-foot travelway. Local roads normally serve a smaller area than collector and connect to collectors or public road systems. Local roads receive lower volumes, carry fewer traffic types and generally serve fewer uses. These roads may be single or double-lane with travelways 12-24 feet in width, with intervisible turnouts. Resource roads are normally spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of use. These roads are single lane, which may be reclaimed after a particular use terminates. These roads normally have a 12-14 foot travelway with intervisible turnouts. The reader is encourage to contact the BLM to obtain additional information on road design and specifications.

Comment:

I am quite concerned that the counties are underestimating the future impacts of the degrading watersheds on the whole, watershed on a countrywide basis. Rio Arriba has a hard time maintaining the roads as they are. The Draft RMP/EIS does not adequately address road damage by oil and gas industry vehicles.

Bill Humphries

Response:

The Albuquerque Field Office of the BLM has recently reached an agreement with the Rio Arriba County Commissioners to assess road damages and to assist them in road maintenance. The AFO will also form a road management unit in Rio Arriba County similar to those formed in the FFO to address road maintenance problems.

Comment:

BLM will limit use of roads and not open them back up for use.
Doug and Peggy Bogart

Response:

Maintained oil and gas roads will generally be open for use until oil and gas activity ceases. Major collector routes would remain open and designated trails would be open for access. BLM only intends to disallow use of pathways (such as two-tracks) that are not legitimate roads. We have included in the Preferred Alternative 95 miles of trail identified by the local user groups in the initial scoping. We realize that there are numerous existing trails and routes that have not been identified. These trails and routes will be inventoried and analyzed for suitability during the preparation of the OHV activity plans. Existing trails as defined on Page 2-24 are conditionally considered to be a designated route until they are inventoried and analyzed in the OHV activity plans.

Comment:

County roads are used by very large trucks and comprise a large volume of traffic on some county roads.
James and Diane Benesch

Response:

Comment noted.

Comment:

The EIS does not clearly state the cost impacts on counties for maintaining roads used by oil and gas industry.
Bill Humphries

Response:

The Counties would continue to be responsible for maintaining county roads at their designated level with priority for maintaining access to schools and residences.

Comment:

Public safety does not appear to be considered in the oil and gas field road system.
Bill Humphries

Response:

Construction and design of roads need to meet the standards within the "Gold Book". These standards consider the type of traffic, level of use, safety needs, and are designed to control erosion and run off. If ongoing studies result in recommendations to improve standards for specific areas, these recommendations will be incorporated as new standards.

Comment:

Public safety does not appear to be considered in the oil and gas field road system.
Bill Humphries

Response:

Construction and design of roads need to meet the standards within the "Gold Book." These standards consider the type of traffic, level of use, safety needs, and are designed to control erosion and run off.

Comment:

There are too many roads and they effect wildlife, cause erosion, and create weed problems. The proliferation of roads is affecting the health of our watershed and rangeland.
Nora Flucke
Debra Van Winegarden

Response:

Comment noted.

Comment:

The inclusion of the counties involved is not adequate for them to fully know or analyze the full impacts, both adverse and beneficial. Road damages and maintenance alone are becoming a major cost to the counties. The economic burden and costs of repairs, clean up and improvements should be primarily paid by the lessees, then new funding mechanisms should be considered, such as Federal Funding from the Royalties and from the Reclamation Fund to help BLM pay for the repairs and reclamation of existing problems. However, 100 percent of the cost of all new activities should be paid by the lessees.

Bill Humphries

Response:

The FFO has worked cooperatively with industry to form the San Juan Basin Public Roads Maintenance Committee. The Draft Bylaws of this committee (Appendix D) provide that industry will provide 95 percent of road maintenance funds. The AFO will pursue similar agreements for areas under its management. Additionally, oil and gas companies have been voluntarily contributing funds to an offsite mitigation account. Continued coordination and cooperation between stakeholders will be stressed in order to resolve problems.

Category: SDAs

Comment:

The EIS does not provide economic analysis of proposed new SMAs and roadless restrictions, particularly on the viability of oil and gas production.

Thomas Mullins, Synergy Operating, LLC
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The RMP/EIS is the documentation and planning process for designating new SDAs. No new roadless area restrictions are included. The EIS addresses the overall economic effects of proposed development in consideration of proposed stipulations. CSU stipulations would not require the use of alternate drilling methods and would have minimal effects on the overall cost of developing a new well site. BLM will continue to balance the national needs for resource production with other laws that require resource protection. A range of alternatives are being explored that would achieve different measures of production and protection.

Comment:

Directional drilling may be economically unfeasible.

Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

BLM acknowledges that directional drilling may not be economically feasible in some circumstances at some times. Different technologies may be appropriate in achieving the environmental protection desired. Many alternate drilling technologies may become more cost effective over time.

Comment:

The EIS nomenclature for Cereza Canyon SDA appears to be inconsistent.

J.D. Barnett

Response:

The EIS map erroneously uses the name Carrizo Canyon for the wildlife SDA. The correct name is Cereza Canyon, as is used in the table.

Comment:

There is no explanation why Frances Canyon is proposed. Surface constraints should depend on field inventories and field monitoring to avoid impacting cultural resources rather than applying restrictions on wider areas.

Bruce Policky, BP America Production Company

Response:

This SDA is proposed for is cultural values. The proposed SDA is Frances Mesa. A significant amount of data has been gathered for this area. Frances Canyon is the name of the smaller existing SMA. The NSO designations in Alternative D apply only to the acreage surrounding the current Frances Canyon Ruin and Romine Canyon site. In the preferred Alternative D, the remainder of the proposed SDA would be CSU and cultural resources would be treated in a manner similar to the comments.

Comment:

The high development area for oil and gas should be an SDA that allows for access to national energy resources.

Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

BLM is evaluating a range of SDA delineations for special resources throughout the high development area. Without creating one encompassing SDA, BLM is attempting to balance access to oil and gas resources while providing protection of multiple resources with special value. In addition to the National Energy Plan and policy, BLM is responsible for managing public lands and assets in compliance with many laws that protect a range of public interests, including the environment.

Comment:

Designating certain areas for their special resource values can increase the degree of threat to these resources because the public has more information about their location.

Thomas Mullins, Synergy Operating, LLC

Response:

Comment noted. BLM limits the amount of precise information about the location of SDAs (for example, the boundary coordinates are not published).

Comment:

BLM already has problems with enforcement. How will they be able to deal with enforcement in expanded SDAs? What is the cost to the taxpayers and industry?

Thomas Mullins, Synergy Operating, LLC

Response:

The Federal Land Policy and Management Act requires that BLM manage public lands in a manner that "...takes into account the long-term needs of future generations for renewable and non renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values..." Likewise, the Endangered Species Act requires that the BLM not take actions that would jeopardize the future existence of listed Threatened or Endangered Species. Specially Designated Areas are one means by which the BLM is attempting to meet the mandates of these laws. Bureau budgets are determined by Congress and, depending upon budget appropriations, the BLM could use a variety of methods to implement monitoring of sensitive resources. These methods can include use of existing personnel, use of volunteers, and contracting to private firms or educational institutions. Costs cannot be accurately predicted at this time, but the FFO does not anticipate a large increase in existing budget to monitor SDAs.

Comment:

Would compressors be located away from NSAs?

Isaac Eastvold

Response:

Locating wells and compressors further from a noise sensitive location is one method of reducing noise levels. Other methods include baffles and screens and quieter motors. It will be left up to the operator and transporter to determine the best and most efficient way to meet the standard developed in the NTL.

Comment:

The FFO encompasses extremely valuable cultural resources and they should be cared for with equivalent treatment as other world-class treasures.

Isaac Eastvold

Response:

Comment noted. The BLM recognizes the extent and richness of the cultural resources within the FFO. Proposed expansion of cultural SDAs reflects concern for the protection of these resources. If information regarding site-specific preservation issues are provided to BLM, then treatment measures can be considered.

Comment:

NSO and CSU stipulations will affect viability of development of well sites and therefore, unemployment levels.

Gary Markestad, XTO Energy, Inc.

Response:

The affect of lease stipulations on the cost of development and the economic viability of developing oil and gas resources is projected to minimal. Under Alternative C, a projected 134 new wells would need to be directionally drilled. This represents 1.3 percent of projected new wells over 20 years. Considering that oil and gas jobs represent less than 8.5 percent of the jobs in any county in the project area, any decrease in jobs would translate into a very small number of lost jobs over 20 years. Implementing measures to protect resources under CSU stipulations are not expected to increase costs of developing well sites beyond the existing viable range of development costs.

Comment:

There should be no new WSA designations and those WSAs not found suitable for wilderness designation should be released back to multiple use. Any access restrictions on existing WSAs should be lifted or significantly revised.

Terry Rust, Southwest Four Wheel Drive Association

Response:

No new WSA or Wilderness designations are proposed in any alternative. BLM does not have the authority to deauthorize any of the existing WSAs. That authority rests with Congress. The BLM is required to manage WSAs under the nonimpairment standards so that they continue to meet the definition of wilderness until Congress either designates them as wilderness or releases them for other purposes or acts.

Comment:

The RMP/EIS does not clearly describe the NSO area around Navajo Dam.

Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

The RMP/EIS description of the area was provided by USBR, the managing agency. No specific boundaries are available, but this would include most of the land that is visible from the lake.

Comment:

Each T&E Species ACEC is currently grazed. The claim that livestock grazing improves rangeland health (2-14) is highly controversial, and indeed not recommended in areas where natural ecological and environmental processes are preserved or landscapes are to be maintained in their natural condition. Hence, the present assemblage of ACECs and WAs are not sufficient to preserve the various unique ecotypes of the San Juan Basin.

Forest Guardians

Response:

Not all of the T&E species ACECs currently exist as designated areas. The only one in which grazing has been determined to be a potential problem is River Tracts, which, as proposed, would be withdrawn from grazing if permits are relinquished or cancelled.

Comment:

The RMP provides no evidence, justification, or the NEPA-required economic analysis for a 31 percent increase in limitations to surface access.

W.D. Jaap, Phillips Petroleum Company
Gary Markestad, XTO Energy, Inc.
David Wacker, Conoco, Inc.

Response:

While there is a 31 percent increase in the acreage of SDAs, most of these do not limit access to surface resources on mineral leases. The impacts caused by surface disturbance are presented in most of the resource sections under Chapter 4, including the biological resources. Economic impacts are presented in as much detail as is possible at this broad scale of analysis.

Comment:

Please clarify the purpose of the San Luis Cliffs Window. On Page 2-211, is identified as a Specially Designated Area for the purpose of right-of-way window use. It appears to be identified as a right-of-way window on Map 5 of the "Albuquerque RMP Amendment/FEIS for Oil & Gas Leasing and Development," December 1991.

Douglas Campbell, PNM

Response:

San Luis Cliffs Window is an SDA under the management of the AFO. This SDA contains controlled surface occupancy restrictions for oil and gas operations. None of the management prescriptions in the AFO areas are proposed to be changed in this document, so the purpose and management is the same as it is currently.

Comment:

A conflict exists by not allowing right-of-way corridor activity in certain SDAs such, as Halfway House and North Road, where existing right-of-way corridors already exist.

Douglas Campbell, PNM

Response:

Existing ROWs would be allowed in certain SDAs. Additional utilities can be placed in areas of existing disturbance. Due to the significance of these cultural resources, any surface disturbance or maintenance may be limited and will be monitored, but has not been completely excluded.

Comment:

Specify that Torrejon Fossil Fauna ACEC has 2 separate units and that under Alternative D the boundary would be expanded, compared to the boundary and acreage under Alternative A.

Douglas Campbell, PNM

Response:

The large color maps in the back of the Draft RMP/EIS were provided to show readers the location, layout, and size of all SDAs under each alternative. The acreage is listed in Table 2-6. In the case of Torrejon Fossil Fauna, boundaries in the 1988 RMP and other previous documents were incorrect. The correct boundary was surveyed by the BLM Paleontology Specialist and digitized for use in this RMP revision. While the boundaries and acreage are different from prior documents, they are now correct and consistent across all alternatives. No increase in size has been proposed. Management prescriptions for Torrejon Fossil Fauna have been dropped from Table 2-5 because administration for the majority of the area lies with the Albuquerque Field Office.

Comment:

Page 2-209: The chart for the Rattlesnake Canyon Wildlife Area refers to a seasonal restriction on drilling and construction on 37,000 acres of potential turkey habitat in the column for Alternative D. However, nowhere is the areal extent of that potential habitat described or identified. Because of the length of the seasonal restriction, and the adverse impact it could have on the industry's ability to conduct operations, the RMP/EIS should clarify where that potential habitat is specifically located. Similarly, the RMP/EIS should provide the basis relied on for identifying the potential habitat.

Donald DeCarlo, Devon Energy Corp.

Response:

The seasonal restriction on the turkey habitat within Rattlesnake Canyon Wildlife Area has been removed from the PRMP/FEIS. Upon review of the existing information, the FFO has determined that the potential turkey habitat receives only marginal use by wild turkeys. The level of use is not sufficient to warrant extending the seasonal restrictions beyond those already in place for big game.

Comment:

With respect to limitations based on potential wild turkey habitat: (i) a more detailed designation of the portion of any SDA that is subject to TL constraints based on potential wild turkey habitat should be added to define areas covered, (ii) there is no consideration of the impact of timing limitations on the ability to implement the Plan or effectively prohibiting development by making 37,000 out of 110,000 acres unavailable in the Rattlesnake Canyon Area for more than six months each year.

Donald DeCarlo, Devon Energy Corp.

Response:

The seasonal restriction on the turkey habitat within Rattlesnake Canyon Wildlife Area has been removed from the PRMP/FEIS.

Comment:

Before any timing limitations on wildlife SDAs are proposed, scientific data must be provided as a basis for the designations. The information must include carrying capacity, wildlife population numbers, trends, and goals for future populations, grazing activity, impacts of hunting, alternative management prescriptions, and the economic impacts on industry.

J.D. Barnett
W.D. Jaap, Phillips Petroleum Company
Thomas Mullins, Synergy Operating, LLC

Response:

The impacts caused by surface disturbance are presented in most of the resource sections under Chapter 4, including the biological resources. Economic impacts are presented in as much detail as is possible at this broad scale of analysis. The monitoring of wildlife population numbers and trends is part of an ongoing, long-term interagency effort that contributes to FFO land use management decisions. The new Wildlife Areas have been proposed in the interest of improved wildlife management based on current knowledge. FFO wildlife specialists proposed these areas based on their professional opinion backed up by surveys, but the survey results can always provide better information if they consist of more years of data, while little is done to manage known problems. According to BLM policy, the wildlife management program is to work toward natural wildlife abundance and species diversity and to "maintain, improve, and expand wildlife habitat on public lands" (Page 2-11 of the DRMP/EIS). These areas resulted in a compromise that does not restrict habitat fragmentation but does limit human activities within important habitat areas during critical times of the year.

Comment:

When BLM designates SDAs such as Gonzales Mesa and Crow Mesa Wildlife Areas that means that permittees cannot kill sagebrush or install any other improvements any more. How does this help the area?

Barbara Truby, Truby Ranch

Response:

Management of sagebrush and other species of importance to wintering deer does not mean that none of these plants can be killed. It does mean that vegetative management activities in these designated areas will be implemented with a priority of managing the plant cover for wintering deer in these areas. Specific management to accomplish this will vary due to the vegetative condition and trends at any particular time.

Comment:

After 40-some years of observing cultural site damage, I have never seen the cows damage, or in any way, alter a cultural site, and I have seen lots of the access provided by the oil field road either totally vandalize them, have them hauled off, shot up, or constantly prowled and what I consider to be vandalized. And frankly, with the growing population of the elk and cattle having the same grazing habits, the same foot pattern, and the same surface disturbance, I don't see a clear indication that the elk are going to be excluded from this.

Bill Humphries

Response:

BLM specialists and others have clear evidence of cows damaging certain types of archaeological sites. While it is not possible to exclude elk from these areas in most cases, reducing use by managing grazing is within the authority of the FFO to do for the purpose of protecting resources. A relatively small acreage of SDAs would be closed to grazing under the Preferred Alternative, and many of those would only be closed if a permit were relinquished. Few existing permits would be withdrawn. The Draft RMP/EIS also cites some studies that found that increases in roads correlate with increased vandalism and uses this information to document the potential for negative impacts on cultural resources due to increased oil and gas development.

Comment:

As long as an archaeological survey is conducted prior to drilling, the additional cultural resource SDAs are not needed to protect them from oil and gas development. BLM is using this to close more areas to grazing even though there are already 491,945 acres closed. The recreationists are causing the problems, not the cattle, and more enforcement is needed.

Barbara Truby, Truby Ranch

Response:

According to Table 2-12 in the DRMP/EIS, there would be 25,730 acres in SDAs with limits on grazing under the Preferred Alternative, not 491,945 acres. There would be 25,442 acres under no surface occupancy constraints for oil and gas development in addition to the acreage under other constraints. The addition of the new cultural resource SDAs were included to protect significant archaeological sites from a variety of activities including grazing, oil and gas development, ROW construction, and OHV access.

Comment:

Grazing is a basic, grassroots part of the multiple use policy that should take priority over cultural sites that provide little more than unprofitable recreational value. Closure to grazing is totally unnecessary to the availability and stability of cultural sites.

Cathy Truby, Truby Ranch

Response:

The protection of cultural resources is not measured in profitability, but is conducted as part of the BLM's responsibility to manage and protect our national heritage. Grazing closures are very limited and only implemented on those sites that are susceptible to damage by cattle.

Comment:

I want to know why specifically Albert Mesa, Cibola, Dogie Canyon, Pork Chop Pass, and String House are at this time closed to grazing. Three of these places are my mom's ranch, and the other two border it. I want proof of why you need to close these to grazing. I've been out there for a long time. The cattle are not harming sites, and I want you guys to prove where they are harming the sites. What's harmful to these sites are people going out to see them. And I've never been with somebody who didn't go out to see these sites that didn't insist on touching them.

Barbara Truby, Truby Ranch

Response:

BLM specialists and others have clear evidence of cows damaging certain types of archaeological sites. While it is not possible to exclude elk from these areas in most cases, reducing use by managing grazing is within the authority of the FFO to do for the purpose of protecting resources. A relatively small acreage of SDAs would be closed to grazing under the Preferred Alternative, and many of those would only be closed if a permit were relinquished. Few existing permits would be withdrawn. The addition of the new cultural resource SDAs were included to protect significant archaeological sites from a variety of activities including grazing, oil and gas development, ROW construction, and OHV access.

Comment:

It is not clear how the BLM creates SDAs for protection of significant archaeological sites. Can new ones be created to protect sites from oil and gas development?

W. James Judge

Response:

The proposed cultural ACECs and their associated management prescriptions were designated for the purpose of protecting significant cultural resources from all potentially damaging activities. They were designated based on the 43,000 currently recorded archaeological sites and the specialists' knowledge of how to protect different types of sites.

Comment:

I support the creation of cultural SMAs in general, and would like to see comments made on the cultural SMAs as far as resources applied to the development of those.

J.D. Barnett

Response:

Comment is noted.

Comment:

There was no systematic approach to inventorying the full range of cultural resources in the planning area, and determining a set of criteria for ACEC or SMA designation. This means that significant (i.e., eligible for the National Register of Historic Places) resources will, in all probability, be negatively impacted during oil and gas operations, resources that could be protected were they given SDA designation.

Forest Guardians
W. James Judge

Response:

Designation of the new cultural ACECs was based on the expertise of the BLM's cultural resource specialists and the current knowledge of the 54,000 recorded sites in the planning area. The BLM specialists prepared worksheets that documented the need for specific ACECs or changes to existing boundaries along with proposed management prescriptions and the rationale for each ACEC. These were presented in varying forms under different alternatives. Existing policy that requires cultural resource clearances before any surface disturbing activity is approved would preclude the negative impacts to cultural resources from oil and gas operations.

Comment:

The number of SDAs that could be extended to protect threatened sites should be presented, as well as whether new SDAs are anticipated for future protection.

W. James Judge

Response:

All boundaries and number of cultural ACECs proposed to be implemented to protect sites have been identified by FFO specialists and have been presented in the Draft RMP/EIS. Should new information come to light in the future, new ACECs could be designated or boundaries could be changed through an RMP amendment.

Comment:

The description of all SDAs needs to be reviewed to consistently indicate how ROWs will be protected and expansion will be permitted.

Douglas Campbell, PNM

Response:

The BLM has designated these SDAs to enable them to protect specific and clearly identified resource values. Where protection of the resources indicated conflicts with the availability of new ROWs, the ROWs may be restricted or not allowed. ROWs would be granted based on site-specific analysis and could include special stipulations to protect the resource for which the SDA was set aside.

Comment:

Well-documented scientific studies should be conducted to determine the actual need for, or size of, the increased number of SMAs in the plan.

Grant Melvin, Independent Petroleum Association of Mountain States

Response:

Scientific studies based on wildlife surveys from several agencies, cultural resource surveys, T&E surveys, areas receiving concentrated recreational use, and the knowledge of the FFO staff are the basis of the proposed SDAs.

Comment:

(The) Continuing Management Guidance section pays inadequate attention to visual resource management. Nearby Class I and Class II areas will be impacted by the proposed development, unless better mitigation plans are drawn up.

Wano Urbonas, San Juan Basin Health Department

Response:

VRM in the Continuing Management Guidance section was intended to summarize the categories and the policies regarding implementation. VRM is supposed to be considered for all permitted actions on BLM managed land. Stipulations to mitigate visual impacts that meet the appropriated VRM class objectives will be developed and attached to permitted actions.

Comment:

Pages 2-236-237: The RMP/EIS provides conflicting representations regarding how many NSAs actually exist.

Deborah Seligman, NM Oil and Gas Association

Response:

The text on Page 2-236 lists the number of specially designated areas for Alternative D where the impact from noise created by oil and gas development is an issue. The SDAs have been categorized as either a receptor-based noise sensitive area or a boundary-based noise sensitive area. The management of noise will vary in the SDAs dependent on the category it fits in (see Appendix E, Alternative D, Table 2-5 Management Prescriptions for SDAs). See also text change on 2-236 for correct numbers.

Comment:

The RMP/EIS provides conflicting representations regarding how many NSAs actually exist. There is no Exhibit A to Appendix E as mentioned in the NTL for noise.

Gary Markestad, XTO Energy, Inc.

Response:

The number of NSAs listed in the RMP/EIS vary depending on the alternative. Table 2-5 indicates whether a particular SDA will be considered a noise sensitive area. Appendix E contains the Draft NTLs for management of noise in the SDAs based on the alternative. Corrections were made to the text where the number of NSAs listed is in error. Appendix A, referred to in the Draft NTLs, was left out of the RMP/EIS document because much of the information in the appendix was listed in Table 2-5. See text change in Appendix E that refers the reader to Table 2-5. See also text change in Table 2-5, (noise heading) for those areas where stricter standards may apply.

Comment:

In the 100 years my family has grazed on this allotment, there has been no damage to any of the sites on the allotment due to grazing or range improvements. As an example, in particular, I find it odd you would close the Dogie Canyon School. It was built by ranchers for their children. Yet their grandchildren will not be able to graze this land? To end their future in the name of the past does not make sense.

Barbara Truby, Truby Ranch

Response:

BLM specialists and others have clear evidence of cows damaging certain types of archaeological sites. BLM has a responsibility to comply with federal and state laws, in addition to agency policy, that requires protection of significant cultural resources. A relatively small acreage of SDAs would be closed to grazing under the Preferred Alternative, and many of those would only be closed if a permit were relinquished. Few existing permits would be withdrawn.

Comment:

Page 4-100, Column 2, Specially Designated Areas: The Plan proposes that industry will drill 87 directional wells to protect SDAs with no mention of economic or technical viability. As stated earlier, economic and technical considerations should be considered in all development decisions and recommends the final sentence of the initial paragraph in this discussion be replaced in its entirety with the following language: "Due to possible NSO constraints within SDAs, 12 wells containing oil and gas mineral resources will remain undeveloped due to be the limitations of current technology. In addition, approximately 87 wells may be technically infeasible and/or uneconomic to develop directional drilling is the only mitigation measure available. Industry and BLM will endeavor to utilize the best available technology, taking into account economic viability, to protect the specific resource in the SDAs and areas of potential NSO prior to development."

Bruce Policky, BP America Production Company

Response:

Comment is noted.

Comment:

Pages 2-37-211: All of the Specially Designated Areas on the Truby allotment call for closure to grazing. This seems to be discriminatory, as no other allotment calls for ALL sites to be closed to grazing.

Jennifer Truby, Truby Ranch

Response:

SDA The only sites identified for closure to grazing are the existing Cibola Canyon and Dogie School ACECs. These were designated in the 1998 RMP Amendment and did not result in any change in AUMs for the allotment. The proposed Superior Mesa ACEC which will encompass portions of the Gonzales Mesa (Truby) Allotment does not propose any additional changes in grazing prescriptions for that part of the allotment.

Comment:

New SDAs should only be created after proper analysis, including economic analysis. The EIS lacks the technical documentation of the resource value, or benefit to those resources of the SDA designation and stipulations.

W.D. Jaap, Phillips Petroleum Company

Response:

The RMP/EIS is the NEPA analysis for designating new areas with special restrictions. The EIS is at a landscape level in so far as it is does not provide site-specific analysis or economic impacts of changes on specific well site development. It provides an assessment of the relative change in economic outcomes of the alternatives, based on known parameters. Evaluation of outcomes based on multiple scenarios of independent factors is beyond the scope of the NEPA analysis.

Comment:

The location of several SDAs is not determinable.

Barbara Truby, Truby Ranch

Response:

Maps attached to the Draft RMP/EIS show the approximate location of SDAs. In order to protect some sensitive resources, the precise location of some areas cannot be made public.

Comment:

Additional site-specific analysis is needed before designating numerous SDAs.

Michael Lane, Williams Companies, Inc.

Response:

The RMP/EIS is the appropriate document for analyzing and designating new SDAs. The BLM considers a range of alternatives that would enable resource production and resource protection and must decide on a balance between both. Through designating SDAs, BLM is attempting to manage for the protection of specific parcels that have resource values, rather than imposing restrictions on wider areas that may not contain special values requiring higher degree of protection.

Comment:

A more particular description or designation of NSO areas should be included.

Donald DeCarlo, Devon Energy Corp.

Response:

NSO is not a land use designation per se, but rather a stipulation on a lease that limits certain actions that could degrade the environment of a specific site. Areas with NSO designations are identified in Table 2-5.

Comment:

There are problems with inadequate enforcement at some SDAs, particularly popular ones like the Glades. They are being used for a variety of activities, some incompatible with one another and some are unsafe. In the public interest, BLM needs to be able to follow through on adequate management of these areas.

Jen McFarland

Response:

BLM recognizes the amount of time and effort needed to properly manage the Glade Recreation Area. We are committed to working with the local city and county governments, and the various user groups to assist in the management and protection of this important recreation area.

Comment:

The Rock Garden Recreation Area will not be adequately managed by the BLM.

Jen McFarland

Response:

BLM recognizes the amount of time and effort needed to manage a specially designated area. We wouldn't have proposed designation for the Rock Garden if people were not using it for a variety of concentrated recreational activities. Through designation we can focus management towards the recreational aspects of the area.

Comment:

Commenter supports making the southern portion of the Glades for non-motorized recreation only and provides specific details for a future plan for this area that recommends management of the southern area that is separated from the main SDA to prevent trespassing.

Bruce Black, La Plata Cliffs LLC

Response:

Because of the constant vandalism, and trespass on private lands in the southwest portion of the Glade Recreation Area BLM has moved the Glade Boundary north of the private land (see map for Alternative D.) The isolated BLM parcels will no longer be within the Glade Recreation Area and will fall under a limited OHV designation. Any access to these isolated parcels would require the permission of the private landowners surrounding them.

Comment:

The RMP/EIS does not provide adequate details or analysis of SDAs and proposed expansions and changes in management for these areas. The EIS does not adequately evaluate the impact of changes in managing these areas on oil and gas development.

Bill Humphries
W.D. Jaap, Phillips Petroleum Company
Michael Lane, Williams Companies, Inc.

Response:

The alternatives evaluated in the RMP/EIS address a framework for managing resources throughout the FFO. The level of site-specific analysis is not possible since many actions (such as land adjustments) depend on subsequent evaluation and arrangements between cooperating partners in a transaction. Implementation of management prescriptions and stipulations on leases are addressed on a case-by-case basis. Since there is some flexibility with siting and provisions of any particular lease, detailed analysis of site-specific actions is not possible within a Field Office-wide analysis. The RMP/EIS provides an overall evaluation of impacts across the Field Office, rather than site-specific.

Comment:

The RMP/EIS does not provide adequate details or analysis of SDAs, and additional ACECs should be designated.

Len Carpenter, Wildlife Management Institute

Response:

Comment noted. Several areas are proposed for ACEC designation under Alternatives C and D.

Comment:

More restrictions on oil and gas development are needed on popular recreation sites in order to protect the recreation experience, for example, along the San Juan River and around Navajo Lake.

Carolyn Dunmire, Ecos Consulting

Response:

The restrictions included in the some alternatives being evaluated would provide some additional protection for popular recreation. BLM seeks to balance the needs for quality recreation without eliminating potential development of existing leases.

Comment:

The RMP/EIS is unclear on administration of lands surrounding Navajo Reservoir.
Donald DeCarlo, Devon Energy Corp.

Response:

Under Alternative D, NSO and CSU stipulations would apply to existing leases as defined on Pg. 2-237. A range of mitigations would be applied to minimize visual impacts. Under Alternative D, facilities would be placed at some distance away from ridgelines to avoid visibility from the lake or shoreline.

Comment:

Clear procedures, definition of NSAs, and public involvement should be provided before adopting NSA policy.
E. Randall West, El Paso Field Services Co

Response:

This is the public process for considering proposed NSAs and noise standards. BLM is considering two standards, described in Appendix E of the Draft RMP/EIS. See also Table 2-5 for a list of proposed NSAs, which ones are boundary-based versus receptor-based and where stricter standards may apply.

Category: Soils

Comment:

Page Summary-4: In the discussion under "soils," the terms "short-term disturbance" and "long-term surface disturbance" are not defined; they do not appear to be defined elsewhere in the RMP. The meaning of the terms should be clarified in the final document.

Deborah Seligman, NM Oil and Gas Association

Response:

The Summary is intended to provide a brief comparison of impacts, so many terms are not defined. The first introduction to the concept of short- and long-term disturbance is presented in the assumptions on Page 4-2 of the Draft RMP/EIS. This explains that short-term disturbance was calculated to represent the average total acreage disturbed before any revegetation occurs. The long-term disturbance represents areas of bare ground like well pads and roads that will not be revegetated until reclamation. Short-term disturbance is used interchangeably with initial surface disturbance. Clarification has been added to the PRMP/FEIS and a definition has been added to the glossary.

Comment:

McKinley County has soil maps available at a resolution of 1:24,000. Chaco Culture NHP has a soil map nearing completion at a resolution of 1:12,000. We are happy to share information as it relates to your project, so that the most up to date data can be used for the impact analysis.

Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

Due to the large planning area (8 million acres) and the landscape scale planning level of the analysis, it was necessary to use soils maps and associated data that would represent the entire planning area with the same level of detail. It was also important to be able to evaluate soils using GIS data. While portions of the planning area have been updated and are available in GIS format, other parts are not available, so STATSGO was used. The new McKinley County soil survey and the Chaco Culture NHP soil map could be used for site-specific NEPA analysis.

Category: Utilities Corridors

Comment:

The EIS does not show where PNM plans to put in new utility corridors so the public cannot comment on these proposals.

Bill Humphries

Response:

The PRMP has been edited to indicate that the BLM is endorsing the 2002 Western Utility Group revision of the 1992 Western Regional Corridor Study as the designated corridors for the planning area. PNM, as well as other proponents, will undergo a NEPA process to evaluate the impacts of future proposals. BLM's policy will encourage use of existing corridors and those in the WUG plan. At this time, corridor alignments have not been refined or proposed. As such, the RMP/EIS is not making decisions on future corridors at this time. BLM recognizes that many of these plans have been developed based on studies and have not been reviewed by the public. BLM's policy to consider these plans when reviewing applications for ROWs in the future is intended to promote more consolidated infrastructure networks.

Category: Vegetative Resources

Comment:

In all the discussions of noxious weed management there was no discussion of the invasion of Rabbit Brush on virtually every disturbed site. Why was that not included as species to be managed and control required on all existing sites and all new sites??

Bill Humphries

Response:

Noxious weed management is focused on invasive non-native plants. While rabbit-brush can occur on disturbed sites, it is a native plant that has not been identified as a species of concern by the FFO.

Comment:

I'd also like to contest the statement which lists that livestock inhibits revegetation. In many places in mining, they use cattle to help reseed and rebuild the face if the land.

Barbara Truby, Truby Ranch

Response:

The statement is referring to situations where livestock graze down newly revegetated areas.

Comment:

Page 2-243, Table 212, Comparison of Impact: It doesn't list grazing at all. You can't take this much land out of production and not affect grazing.

Barbara Truby, Truby Ranch

Response:

Estimates of the average number of AUMs affected by surface disturbance have been added to the PRMP/FEIS.

Comment:

It is stated that weed management plans are needed. Please take this one step farther and put the plan into place as part of the RMP/EIS.

Janet Rees

Response:

Weed management plans are part of continuing management under BLM policy. Efforts to monitor invasive plants and the implementation of weed management plans will be increased as part of the additional staffing recently provided to the FFO for monitoring and enforcing COAs and approving reclamation.

Comment:

The section on Upland Vegetation, Page 3-30, provides Map 3-6, which inappropriately excludes the northern part of the "affected area" (i.e., Southwestern Colorado). At first glance, it could be said that the vegetation will not be disturbed in Southwestern Colorado by the actions planned. However...the impacts of acid precipitation from increased air pollution, specifically NOx, could dramatically affect vegetation, particularly at high elevations where acid precipitation may already be at or near threshold levels.

William Simon, Alpine Environmental Services

Response:

Map 3-6 shows the generalized vegetation types in the planning area as defined in Chapter 1. Vegetation disturbance discussed in the document is referring to the direct impacts caused by surface disturbance, primarily from oil and gas development. Currently, the problem of acid rain is addressed at the federal level for stationary power sources only (primarily coal, oil, and gas-fired electric utility plants). There are no plans at present to include other sources in the program, but monitoring is ongoing.

Comment:

The potential for the spreading of noxious weeds exists for all vehicles and all surface-disturbing activities. There is no need for the inclusion of the term "oil and gas" in the sentence describing the spread of noxious weeds by vehicles.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company

Response:

Comment is noted. The majority of the traffic and surface disturbance are from oil and gas industry operations.

Comment:

Page 2-10, Invasive Weed Management: What, specifically, is the BLM doing to control invasive species from oil and gas activity? Lands disturbed for well pads and pipelines have often been the site of introduction.

Alicia Malone
Jennifer Truby, Truby Ranch

Response:

The procedures for weed management are listed on Page 2-10 along with the mandates. Weed management plans are site and project specific and must accompany all surface-disturbing activities including installation of well pads and pipelines.

Comment:

The EIS presented by the BLM is deficient in its dealing with possible impacts to native plants.

Alicia Malone

Response:

Without the specific site locations, general impacts to native plants are all that can be presented. Site-specific impacts and mitigation measures would be part of all EAs and weed management plans for surface-disturbing projects, according to BLM policy.

Comment:

Exploration activity, construction of roads and well pads, and the installation of pipelines cause mixing of soils and loss of vegetation resulting in erosion, increased runoff, landslides and flooding. Drainages that are cut off by new roads change runoff routes reducing water in some areas and causing erosion in others.

Alicia Malone

Response:

These impacts are discussed in Chapter 4 under sections addressing soils, watersheds, water resources, and vegetation.

Comment:

Revegetation is more likely to replace plant communities within 20 years if the seed mixes prescribed by the BLM are more site-specific. BLM currently uses only 2 seed mixes for the entire Farmington Field Office.

Brian Wood, Permits West, Inc.

Response:

Seed mixtures should be site-specific and may be updated as new information is available. More than 2 seed mixtures are currently used by the FFO, dependent upon the proposed site and purpose of the seeding. It would be too restrictive to provide this level of detail in this land use plan level document intended to be used for 20 years.

Comment:

Page 10, Alt. D, Rangeland: All vehicles may spread noxious weeds, so there is no need to include the term "oil and gas" in the sentence describing the spread of noxious weeds by vehicles.

Deborah Seligman, NM Oil and Gas Association

Response:

Agreed. However, this part of the Summary was addressing impacts from oil and gas development and the majority of the traffic on the roads in the FFO area are due to oil and gas vehicles.

Category: Visual Resources

Comment:

Any specific future plan to develop coal in the Chaco Wash should assess the visibility impact on Chaco Canyon in a NEPA analysis.

Mark Pearson, San Juan Citizens Alliance

Response:

NEPA analysis would be required for specific coal development proposals.

Comment:

The BLM in the RMP/EIS does not identify the locations of the various lands classified under the Visual Resource Management ("VRM") program (Classes I-IV).). It is important that interested parties have the opportunity to provide input regarding the impacts of the VRM program as the process of oil and gas development moves forward.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

Map 3-9 on Page 3-61 of the Draft RMP/EIS provides an overview of existing VRM designations. Changes from this map would be by specific SDAs at a scale too small to display. However, changes in VRM designations proposed under each alternative are indicated under each SDA in Table 2-5 and the locations of each of these areas is shown on the large maps at the back of the document.

Comment:

Visual Resources presently only considers the "planning area" rather than the San Juan Basin airshed. The visual and economic impact to the vistas of the Basin in both Colorado and New Mexico should be quantified for each alternative. Visual impairment can increase exponentially to increases in air pollution. We are arguably already near the visual impairment level for National Parks in the area.

William Simon, Alpine Environmental Services

Response:

VRM in this document addresses the inventory and objectives over which the FFO has responsibility. Monitoring and mitigation of air quality impacts planned by the BLM in cooperation with other agencies in the region would result in limits to the air pollution so visual impairment does not occur as a result of project actions.

Comment:

There is no assessment of visual impacts on value of private land.

Bill Humphries

Response:

BLM recognizes that managing development on split estate properties presents situations that can impact private surface owners. BLM attempts to include private property owners and lessees in negotiating COAs on specific private parcels on a case-by-case basis. If requested, the FFO and AFO will meet with concerned landowners to describe surface owner rights and operator requirements for surface protection in split estate situations.

Comment:

The visual impact assessment should consider impacts on a landscape wide basis and extending across state lines into Arizona, Colorado, and Utah.

Bill Williams

Response:

Comment noted. The scope of the analysis was limited primarily to land for which BLM FFO has management responsibility and could not be addressed across state lines. Typically, VRM impacts are addressed within viewsheds, taking into account the distance from which landscape changes can be seen. In this case, the changes due to oil and gas development would not be apparent at long distances.

Comment:

The night sky as a viewshed was not described or analyzed within the EIS.
Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

This was not identified as an issue of concern during scoping. However, the BLM FFO realizes the importance of the night sky to rural residences and places set aside for the protection and preservation of natural areas (wilderness, National Parks etc.). Potential impacts from actions being permitted in and around areas of concern would be analyzed in environmental documents and appropriate mitigation measures would be developed and implemented.

Comment:

The discussion in the final sentence in the first full paragraph on Page 2-8 regarding visual design considerations should be amended to include the necessary qualifier that any potential visual design considerations should first be evaluated for economic viability, consistent with statutory and regulatory guidance.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association

Response:

The referenced discussion is an explanation of BLM policy related to visual resources management. Economic viability is not part of the agency guidance being described. However, BLM staff make an effort to implement economically feasible methods of compliance with the policy. This policy is not under consideration for change in this document.

Category: Water Quality

Comment:

The discussion of data considered for surface water quality, beginning on Page 3-27, is very incomplete and inaccurate.

William Simon, Alpine Environmental Services

Response:

The information on surface water quality was intended to be general to address the entire planning area and was derived from the USEPA and NMED. Without specifics on what is inaccurate, this comment cannot be addressed.

Comment:

For the sake of completeness, and to supplement or replace information provided in Table 3-7 (which was probably derived from the 303(d) List), the La Plata River is listed for plant nutrients, the San Juan River between the Animas River and Canon Largo is listed for fecal coliform, the Rio Puerco above the Rito Olguin is listed for stream bottom deposits and temperature, and the Rio San Jose is listed for temperature, pH, and stream bottom deposits. Navajo Reservoir and Lake Farmington (part of Farmington's water supply, the watershed of which is currently protected as a special management area, but would not be so protected under the Preferred Alternative) both contain fish with sufficient levels of mercury to be on the 303(d) List. Though not on the 303(d) List, the New Mexico State Departments of Environment, Health, and Game and Fish have developed fish consumption guidelines for the San Juan River below the Hammond Diversion due to mercury contamination.

Gedi Cibas, NM Environment Department

Response:

The 303(d) list was the source cited for Table 3-7. This information from NMED has been added to the Water Quality section in Chapter 3.

Comment:

No information is provided regarding other water quality parameters of interest. Mercury, turbidity, and the other parameters that limit water quality in the planning area are not mentioned in any analysis of water quality impacts of the alternatives.

Gedi Cibas, NM Environment Department

Response:

These parameters are not listed in available documents. Without limits set for TMDLs by NMED, these limits are unknown.

Comment:

The impacts of the Preferred and other alternatives are not described sufficiently to evaluate their effects on water quality. A more thorough analysis of impacts and revision of reclamation policies appear to be required before an informed decision can be made by FFO whether to implement any of the alternatives.

Gedi Cibas, NM Environment Department

Response:

Due to the lack of site-specific locations of projected wells and roads in this land use plan level document, more thorough analyses cannot be conducted. This detailed analysis of impacts must be deferred until site-specific EAs are developed. In general, it is useful for the BLM to know the potential for increases in roads and surface disturbance so they can analyze these more fully when locations of earthmoving are known.

Category: Water Resources

Comment:

Page Summary-4: The discussion regarding water should be amended to reflect that impacts on water quality will be lessened because of the oil and gas industry's implementation of storm water discharge plans.

Deborah Seligman, NM Oil and Gas Association

Response:

A section on mitigation and monitoring has been added to the PRMP/FEIS. The impacts are presented as potential impacts that would be minimized if mitigation measures, including stormwater pollution prevention plans, are implemented.

Comment:

The drilling has caused contamination of drinking water and the lowering of the water table that affects sumps, springs, and wells, especially in times of drought.

Paul Lerno
James and Linda McLaughlin
Janet Rees
Ken Stanley
David and Pati Temple
Barbara Truby, Truby Ranch

Response:

Without specific data to back up this statement, it cannot be included as an impact. Other causes than oil and gas operations could be the cause of these effects on groundwater.

Comment:

Has the BLM considered how the aquifer is affected by the acre-feet of water used by oil and gas operations listed in the Draft RMP/EIS and how downstream water users would be affected?

Leslie Barnhart

Response:

The amount of water listed under each alternative that is used for oil and gas drilling operations is derived from many sources, all of which have been documented to have legal water rights. Not all of these sources for the water used in drilling operations comes from a single aquifer or watershed because the water haulers have access to many sources.

Comment:

Riparian areas are affected by oil and gas companies, not just livestock, causing erosion and sedimentation.

Chris Velasquez

Response:

Under the Preferred Alternative, oil and gas operations would be limited in riparian areas to protect these important areas from damage.

Comment:

A person in Ignacio, CO has had his well made unusable by a coalbed methane operation. Domestic water supplies should be protected.

Ken Stanley

Response:

This situation does not generally occur within the planning area because the average depth of a Fruitland coalbed is much deeper than the same formation near Fruitland coal outcrops in Colorado.

Comment:

During coalbed methane drilling there is potential to contaminate the fresh water zone so groundwater protection is to be provided for near-surface aquifers down to 500 feet (Chapter 4, p. 13). Why is deeper protection not needed?

Janet Rees

Response:

The average depth of a Fruitland coal well is 2,600 feet, much deeper than the depth of the near-surface aquifers referenced in the section cited. Deeper protection has not been found to be necessary because water in the deeper formations is not potable.

Comment:

In Chapter 4, we are told loss of produced water from various formations is considered minimal and would be contained within a few feet of the wellbore. Amount is not considered substantial and only a small amount of ground water would be affected. What is the basis for these analyses? What is the potential impact on aquifers? What is the estimate for aquifer replenishment if loss is considerable? Monitoring wells should be provided where water quality may be affected.

Janet Rees

Response:

Normal drilling usually exposes aquifers for only a short period of time, usually one week or less. Onshore Order No.2 requires that all useable aquifers be protected by casing or cementing. Drilling systems use low circulation and low fluid loss materials in the drilling operation. Monitoring of make up water is used to verify that water is not entering or leaving the system. A recent study by Maxim Technologies, Inc., used basic chemical principles of osmotic pressure and molecular diffusion to determine that high TDS fluids used in drilling become diluted by the fresher water around the wellbore. The dilution effect reduces the overall TDS of the fluid to usable water supply standards or even federal drinking standards.

Comment:

Commenter questions the classification of Ephemeral Wash as a riparian area because there are no large bodies of water or streams in Largo Canyon. Believes this is being done to limit access to grazing unnecessarily.

Barbara Truby, Truby Ranch

Response:

Riparian management is outlined in the August 2000 Riparian and Aquatic Habitat Management Plan (HMP) which is unchanged by the RMP Revision. The Riparian and Aquatic HMP defines riparian areas according to BLM Technical Reference 1737-9 1992, as areas that exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. The Largo Canyon meets the definition of riparian.

Comment:

Summary-8, Alt. D, Special Status Species: As noted in the RMP/EIS, "The implementation of Alternative D is not likely to adversely affect any federally listed species or designated critical habitats." We understand that the USFWS is expressing the desire that the industry quantify water usage. Because there will be no adverse impacts on endangered species or critical habitats, there should be no need for quantification of water usage, which is an issue traditionally within the province of state and local government.

Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company

Response:

The Final Biological Assessment submitted to the U.S. Fish and Wildlife Service (USFWS) listed the following stipulation regarding water used on any project authorized by Farmington BLM: Water purchased during construction, well drilling, completion of new wells, the workover of existing wells, or any other authorized activity that requires the purchase of water is limited to water acquired under an established legal water rights permit. There is no requirement for quantifying water use. The (USFWS) has concurred with the BLM effects determinations in the BA and consultation with (USFWS) has been completed.

Comment:

Potential impacts to ground water quality should be addressed by the appropriate state agency as part of implementation of the selected alternative.

Gedi Cibas, NM Environment Department

Response:

Information from NMED was used to identify the potential impacts in conjunction with the information related to the alternatives and impacts under other resources such as soil, watersheds, and vegetation.

Comment:

Page 8, Alt. D, Special Status Species: As the RMP/EIS notes, "The implementation of "Alternative D is not likely to adversely affect any federally listed species or designated critical habitats." We understand that the USFWS is expressing the desire that the industry quantify water usage. Because there will be no adverse impacts on endangered species or critical habitats, there should be no need for quantification of water usage, which is an issue traditionally within the province of state and local government.

Deborah Seligman, NM Oil and Gas Association

Response:

The Final Biological Assessment submitted to the U.S. Fish and Wildlife Service (USFWS) listed the following stipulation regarding water used on any project authorized by Farmington BLM: Water purchased during construction, well drilling, completion of new wells, the workover of existing wells, or any other authorized activity that requires the purchase of water is limited to water acquired under an established legal water rights permit. There is no requirement for quantifying water use. The (USFWS) has concurred with the BLM effects determinations in the BA and consultation with (USFWS) has been completed.

Comment:

Page 4-102: The discussion here of "Oil and Gas Leasing and Development" on water resources fails to acknowledge current federal controls, as mentioned on Page 4-13.

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

All federal and state requirements for protection of water resources are assumed, as described under Continuing Management Guidance in Chapter 2. These controls are understood to apply under all alternatives. The potential for impacts to water resources are pointed out under each alternative, with the understanding that mitigation measures would reduce those impacts.

Comment:

The rivers are the only water supply for the entire population of the county. No consideration was given in the RMP for the fact that a significant portion of the BLM land drains across nearly all the private land and into the community's only water supply, placing both the private lands and the water supply at risk.

Evert Oldham

Response:

Water resources and surface disturbance were addressed at the watershed level to enable discussion of the current conditions and impacts to all types of land ownership and water resources from development of federal minerals.

Category: Watersheds

Comment:

The draft document makes no reference to, or proof of, actual measurements of site-specific or watershed wide erosion and sedimentation. Therefore, the actual mitigation, reclamation and repair work required to stabilize the existing damages is not discussed or quantified in the document.

Bill Humphries

Response:

On Page 3-3, there is a discussion of an analysis done on 3 different watersheds with varying road density to calculate sediment yield as a representation of current conditions in the planning area. Without site-specific locations of projected wells and roads, comparison of changes in sediment yields can only be presented qualitatively. A description of mitigation measures has been added to the PRMP/FEIS.

Comment:

The existing damages and erosion problems from existing Oil and Gas Lease operations are not adequately described and is inadequately measured. The document uses an estimating technique (SWAT) (see Page 3-3) and clearly states it does not include all roads and pads and makes no mention of unreclaimed pipelines and all other roads. Therefore, the initial assumptions of the existing conditions are fatally flawed and any assumptions about the Cumulative Impacts are grossly inaccurate and understate the damages that exist now plus the results under any Alternative.

Bill Humphries

Response:

SWAT was used in 3 representative watersheds by applying the most complete data available in GIS. The assumptions on the acres disturbed by oil and gas development including pipelines and roads has been reviewed and approved by BLM and the cooperating agencies. These assumptions were applied to the numbers of wells projected for each township and range in the RFDS, providing a gross estimate of impacts from development of federal minerals and all other minerals in the Basin. These gross estimates are distributed across the high development area and provide the only appropriate level of analysis, given the broad scale nature of the document and the coarse scale of the data.

Comment:

The draft document makes no reference to any existing or future transportation planning to reduce the miles of unnecessary roads and duplicate pipeline surface damage area. Therefore, no serious attempt to define how the future impacts of new surface damaging activities will be limited. Without intensive planning the surface damage will proliferate compounding the existing degraded situation.

Bill Humphries

Response:

Page 2-6 of the Draft RMP/EIS describes the ongoing FFO inventory of the existing road system to identify the major collector roads and to classify and designate all levels of roads. This is necessary before special restrictions and road system planning can occur. This effort would apply under all alternatives as part of BLM policy.

Comment:

The existing damages causing excessive runoff and gully erosion and deteriorated situation of the road and pipeline networks across the entire area are so great that they are now damaging the uplands, riparian areas and most of the watersheds and sub watersheds. The draft assumes that the current situation and Alternative A are essentially benign and apparently assumes that there is no urgency to repair and reclaim existing damages. The compounding problems result from the out of control situation with erosion and runoff caused damage directly resulting from unplanned, unreclaimed and unmaintained roads, pipelines, and well pads.

Bill Humphries

Response:

Existing erosion and sedimentation is documented to the degree possible with existing data. Impact assessment under Alternative A, projected over the 20-year planning period, shows that there would be an increase in roads and bare ground that would result in increased erosion and sedimentation unless mitigation measures are implemented. Existing BLM programs and policies are in place to control these damages and it is assumed that they would continue. The backlog of plugged and abandoned wells has been documented and reclamation is proposed in the document to increase each year to stabilize these sites. Enforcement of COAs and lease terms and conditions, as well as maintenance of mitigation measures including erosion controls and surface water management structures must be assumed to be implemented according to agency policy.

Comment:

The types and methods of reclamation, repairs, revegetation, runoff management and clean up in the Largo Watershed alone will be enormous and as a matter of credibility the RMP/EIS should fully describe and quantify those costs before proceeding with any recommended Alternative.

Bill Humphries

Response:

BLM recognizes that much work needs to be done to rectify the problems associated with historical activities which were done according to the stipulations in place at the time, but which would not be in compliance with today's standards. Mitigation measures have not been determined or evaluated for any watershed because the site-specific nature is not known to that level of accuracy for this land use plan level document. The BLM will continue to emphasize collaborative efforts with industry and other stakeholders to address the legacy of historic problems.

Comment:

The average pH in high country precipitation over a ten-year running average is 5.0. Natural conditions is about 5.7 to 5.8. We are in an acid environment, we are in acid precipitation right now. The effects that that has on our watershed is that it releases the aluminum, and aluminum has been shown over and over again, throughout the world, as one of our biggest toxins to aquatic life in our streams.

William Simon, Alpine Environmental Services

Response:

The pH of the majority of soils in the planning area is high, ranging between 6.6 and 7.9 (neutral to mildly alkaline), which would buffer the acid precipitation. Acid precipitation would not increase due to the proposed project if the planned air quality monitoring and mitigation measures are employed as planned.

Comment:

On Table 3-1, on Page 3-3, acres within each watershed, they're not broken down by ownership. They really should be. The Jicarilla Reservation is the headwaters of the Largo Canyon, and BLM will not have any control unless the reservation is drilling. But it will definitely affect us all downstream. Page 3-21, I can't tell from your map which map unit the Largo Canyon watershed is in. Page 3-26 and 27, Map 3-5 and continuing with 3-6 lists the Largo, Carrizo, Blanco, and Gobernador as streams. If any of you guys have ever been out there, these are not streams. They're dry washes, and I think they should be listed as such.

Barbara Truby, Truby Ranch

Response:

The purpose of the description of watersheds in Table 3-1 is to describe the existing condition of the entire watershed, not just the public land. This provides the background information for evaluating changes to the watershed both on public lands and, under cumulative effects, in the entire watershed where projected oil and gas development would occur even if BLM does not have any control over non-federal minerals. While the watershed boundaries are shown on Map 3-4, the names of the watersheds are not shown due to the soil map unit labels. However, comparing the watershed boundaries on this map to the watershed labels and boundaries on Map 3-1 will show you the soil map units within the Largo Canyon watershed. Map 3-5 is intended to display major drainage areas including washes (or arroyos). Largo, Carrizo, Blanco, and Gobernador are shown as ephemeral (intermittent) streams on many maps including USGS quad maps.

Comment:

Page 4-99: Commenter recommends that the final sentence in the "Watersheds" discussion be deleted and replaced with, "Under existing Federal programs and COAs, oil and gas operators install erosion controls to mitigate the impact of new operations. Consequently, erosion and sedimentation should not increase with new initial surface disturbance."

Donald DeCarlo, Devon Energy Corp.
Gary Markestad, XTO Energy, Inc.
Bruce Policky, BP America Production Company
Deborah Seligman, NM Oil and Gas Association
John Zent, Burlington Resources – San Juan Division

Response:

While it is true that erosion and sedimentation would be reduced if mitigation measures are installed, it would not be eliminated. The referenced paragraph is addressing initial (short-term) surface disturbance and erosion that would occur before stabilization takes place. It is also true, as presented in the document, that increases in the density of unpaved roads in arid watersheds result in increased sedimentation even with mitigations installed.

Comment:

It should be remembered that the footprint for oil and gas activities are shrunk by reclaiming ⅔ of the well pad and all of the pipeline right-of-way immediately after completion of the well. Additionally, once the well has recovered all possible reserves, the entire area is reclaimed, making the use temporary in nature.

Gary Brink, Energen Resources Corporation

Response:

The assumptions that are used in the document, after review and approval by the BLM and cooperating agencies, were that ⅓ of the well pad would be revegetated after construction. The initial short-term surface disturbance acreage includes the total area of well pad, road, and pipeline that is disturbed. This and the reseeding of the pipeline, which was assumed would be successful, are subtracted from the acreage of long-term surface disturbance. While it is true that wells are reclaimed, they do not qualify as temporary or short-term disturbance because the well pads and roads consist of bare ground for up to 50 years.

Comment:

Pages 3-1-4, Topography and Watersheds: The authors admit here that the BLM is NOT taking into account all the access roads when determining runoff, sediment, water quality, etc. The livestock producer has to take all the factors under consideration when, due to unproductive land, the permit to graze is reduced. Loss of land means loss of production. The BLM chooses not to take into account the hundreds of acres of well pads, pipelines, and well pads not reclaimed to measure erosion; yet, these same factors are used to reduce grazing rates.

Jennifer Truby, Truby Ranch

Response:

Calculations of acreage of surface disturbance and sediment yield due to erosion are presented in the document to enable comparisons of impacts across alternatives. The limitations of the data are presented to inform the reader. All roads could not be evaluated because they were not all available in the same form for analysis.

Comment:

The watershed summary discussed the total impacts of oil and gas activity, however the reader is led to believe that all of the surface disturbance would occur in watersheds or indirectly affect watersheds. A regulatory program exists to limit the types of impact listed through the stormwater management regulations as part of the Clean Water Act. References to these regulatory programs should be referenced in appropriate sections.

Bruce Policky, BP America Production Company

Response:

References to the regulatory programs were presented in several places in the document, including Continuing Management Guidance in Chapter 2. It was assumed that all guidelines listed in this section apply under all alternatives. A mitigation and monitoring section that further documents BMPs has been added to the PRMP/FEIS.

Category: Wilderness

Comment:

Limit the number of new wells, especially in wilderness areas.

Susan Beck-Brown

Response:

Development of oil and gas in designated wilderness would only be considered under valid existing rights. Any development would need to meet rigorous criteria to minimize impacts to wilderness values. This would be determined through the appropriate NEPA analysis.

Comment:

The NMWA has identified several areas in the planning area that should be evaluated for their wilderness potential. The Draft RMP/EIS is deficient in not considering these additional areas. Any proposed actions within these unprotected areas identified in the NMWA proposal should not be undertaken until the wilderness resources has been fully assessed. If areas that the NMWA has proposed as WSAs are not designated as such, they should be designated as ACECs to provide these areas with some protection into the future.

Michael Robinson, NM Wilderness Alliance

Response:

The BLM has not received a complete proposal from the NMWA on areas with potential wilderness character. In order for such requests from the public to be considered they must be accompanied by (a) a map which identifies specific boundaries of the area in question; (b) a detailed narrative that describes the wilderness characteristics of the area and documents how that information significantly differs from the information in prior inventories conducted by BLM regarding the wilderness values of the area; and (c) photographic documentation that show things such as intrusions, representative ecosystems, and representative perceived wilderness values. Should a complete Citizens Wilderness proposal be received the BLM FFO will evaluate it based on requirements found in Manual H-6310-1.

Comment:

The RMP/EIS fails to propose alternatives that would protect WAs and WSAs from cumulative impacts of mineral development.

Michael Robinson, NM Wilderness Alliance

Response:

BLM is not proposing new mineral development within these areas, although development of valid existing leases must be considered. Development can occur on adjacent areas and indirectly affect some qualities within the protected areas at some locations (such as viewscape). However, the designated boundary is assumed to include adequate buffer to protect the core wilderness values, recognizing that there shall always be a transition between areas that have the imprint of man's activities and those that are essentially pristine. BLM will continue to mitigate impacts from permitted activities to lessen their impacts on wilderness values.

Comment:

The Farmington Field Office has made no attempt to conduct an inventory of lands with potential wilderness characteristics in the planning area, additional to existing WAs and WSAs.

Michael Robinson, NM Wilderness Alliance

Response:

The Farmington Field Office has not conducted any additional wilderness inventories since the statewide inventory that started in 1979. The FFO has not received any additional information since that inventory was completed that identifies new areas of wilderness character or that demonstrates that areas initially inventoried, but dropped from consideration, would now qualify as wilderness.

Comment:

In Chapter 3, we are given some indication of the kinds of sites that might be impacted by the oil and gas development (Table 3-19). These are organized and reported by 19 separate watersheds, but what is lacking is a tabular comparison of the number and types of known (recorded) sites within each watershed correlated with the projected number of wells to be drilled within each watershed. Though available (if one has the Technical Report), the information is not presented in any single table where it can be adequately evaluated.

Michael Robinson, NM Wilderness Alliance

Response:

The separation of tabular data between the EIS document and the Technical Report was done to reduce the overall size of the EIS. No changes are anticipated in the final EIS and Technical Report. The number of wells per watershed and the projected amount of initial surface disturbance that is most relevant to the number of sites affected is presented in Table 4-2.

Comment:

FLPMA requires BLM to conduct ongoing inventories of all resources.

Michael Robinson, NM Wilderness Alliance

Response:

Section 201 of FLPMA does not require the BLM to conduct new wilderness or other resource inventories during the land use planning process, but rather it acknowledges that inventories for any reason, including wilderness, may be conducted as the BLM deems appropriate.

Category: Wildlife

Comment:

Widespread human activity over upland winter bald eagle foraging habitat could affect the eagle's ability to exploit its food resources.

Barry Rhea, Rhea Environmental Consulting

Response:

BLM determined that proposed levels of development will not result in uplands becoming unusable for bald eagle foraging during the winter. Management for the bald eagle is outlined in the Biological Assessment and USFWS has concurred with the BLM effects determination for the bald eagle.

Comment:

Inventories for less common bird species on FFO land should take place.

Janet Rees

Response:

Breeding bird surveys have taken place in pinyon-juniper woodlands, sagebrush, riparian, and other habitats. The results of these surveys include all species regardless of how common they are. It is beyond the scope of the EIS to provide information on all these surveys. A summary of pertinent bird monitoring studies has been added to the PRMP/FEIS.

Comment:

Must protect the last fragments of undisturbed wildlife habitat.

Ed Stevens

Response:

Measures that would be taken to protect wildlife resources on FFO land are provided in Table 2.5 of the EIS. These measures are described in more detail under "Riparian Area and Wetlands", "Special Status Species", and "Fisheries and Wildlife" in Chapter 4 of the EIS. Protective measures for federally listed and proposed species are also described in the biological assessment.

Comment:

Deer will stop looking for water when they encounter new roads and their habitat is severely damaged.

Leslie Barnhart

Response:

While the potential exists that some roads could limit deer use of water sources, it is highly unlikely. While some research has been conducted on the impact of paved highways on deer, the BLM is not aware of any scientific studies that indicate deer will not cross the types of dirt roads used in oil and gas field development.

Comment:

Concerned that the absence of sufficient protection and conservation of important habitats for sensitive species will move them further towards the need for Federal listing.

Len Carpenter, Wildlife Management Institute

Response:

The BLM is also concerned about conserving habitat for federally listed species as well as non-federally listed sensitive species. The BLM has conducted surveys and has taken measures to protect sensitive species on FFO land. The results of these surveys and protective measures for federally listed species appear in the biological assessment. Surveys and measures for non-federally listed sensitive species appear in Chapter 3 of the EIS.

Comment:

Impact studies on rare and endangered species such as the lynx, mountain lion, and fox species have not been included in the draft.

Nora Flucke

Response:

The lynx is not known to occur in the planning area. The BLM believes that the mountain lion, addressed briefly in Chapter 3 under Fisheries and Wildlife, appears to be doing well as a population. Fox species that occur in the planning area are not considered special status species.

Comment:

BLM should conduct fair studies that exclude violation of the Endangered Species Act.

Nora Flucke

Response:

The BLM has conducted studies of the listed and proposed species under the Endangered Species Act as described in the biological assessment.

Comment:

The BLM is proposing to dramatically increase the level of development and associated disturbance. This course of action is in direct conflict with its own stated management objectives for wildlife management.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM believes that the wildlife management approach described under the proposed action and alternatives would have the best chance of meeting the wildlife management objectives for sensitive, big game and special status species as presented in the EIS and biological assessment.

Comment:

BLM should provide a more thorough description of its aggressive program of habitat improvement.

Barry Rhea, Rhea Environmental Consulting

Response:

Each year the Farmington Wildlife Program implements a number of habitat improvement projects designed to increase and or maintain the food, water, and cover for wildlife. These measures include the construction of earthen ponds, guzzlers, trick tanks, spring developments, and water wells. Vegetation treatments such as pinyon/juniper thinnings, prescribed fire, and seedings are also conducted. Where consistent with OHV policy road closures are done. In some cases, the plug and abandonment of gas wells gone dry in key wildlife areas is expedited.

Comment:

BLM ignored habitat outside the SDAs or about 90 percent of the planning area.

Barry Rhea, Rhea Environmental Consulting

Response:

The scope of analysis in biological resources is not limited to the 13 SDAs. It includes a description of upland and riparian plant communities over the whole area, ACECs outside the 13 proposed wildlife management areas, and sensitive species outside the SDAs on FFO land. The BLM's analysis focused on the proposed SDAs because they are the best wildlife habitat in the high development area where most of the impacts associated with oil and gas development would take place. The approximately 524,000 acres of SDAs comprise about 35 percent of the land in the high development area.

Comment:

Maintenance of raptor populations requires the protection of the prey base. Extirpation of species of raptors is a real possibility under the proposed expanded development and ensuing loss of small mammal habitat.

Barry Rhea, Rhea Environmental Consulting

Response:

BLM has been surveying and monitoring ferruginous hawks s, golden eagles and prairie falcons since 1981, Peregrine falcons since 1991, and bald eagles since 1992. Abundance and nesting success has fluctuated due to weather conditions, but populations have remained relatively stable. There is no evidence to suggest that raptor populations or prey bases are declining as a whole on FFO land.

Comment:

Several potential effects to the Bald Eagle were not addressed in the DBA. Proposed development activities will result in a high level of disturbance and effectively eliminate potential future communal bald eagle roost sites over a large area. These potential sites could be important to future populations should existing bald eagle wintering habitat be destroyed or degraded to the point of non-usability.

Barry Rhea, Rhea Environmental Consulting

Response:

It is acknowledged that there are potential wintering bald eagle roost sites on FFO land that are not currently being used. Winter roost sites on FFO land are typically in ponderosa pine and Douglas fir stands. These stands are found in steep canyons on FFO land and are protected in at least three ways. First, these trees are not allowed to be cut. Second, an ACEC has been implemented in these areas to protect Mexican spotted owl critical habitat. Third, human activities are restricted during the winter in most areas that contain potential bald eagle winter roost sites. For these reasons, the BLM does not believe that oil and gas development or other activities would render potential wintering bald eagle roost sites as unusable. In addition, the existing wintering bald eagle habitat is protected by the bald eagle ACEC so it is not anticipated that this habitat would be destroyed or degraded to the point of non-usability.

Comment:

Proposed development on FFO land has a high likelihood of resulting in a significant reduction in the size of wintering elk and deer herds. Reduction in herd size would reduce availability of carrion from these animals, thus reducing the major food source on FFO land for winter bald eagles.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM agrees and states in its biological assessment that big game carrion is the most abundant food source for wintering bald eagles on FFO land particularly around Navajo reservoir. While increased oil and gas development may result in the reduction of the number of wintering deer and elk on FFO land, the degree of this reduction cannot be determined. The number of wintering bald eagles detected for nine winters at Navajo Reservoir has fluctuated (see Table 5-9 of the biological assessment). Most of this variation is attributed to surveys not being conducted during certain months. During this same time period, the number of wintering mule deer and elk likely fluctuated and yet fairly large numbers of wintering eagles occurred on the reservoir each year. Therefore, the BLM believes that wintering bald eagles will continue to use Navajo reservoir if the proposed action is implemented. Management for the bald eagle is outlined in the Biological Assessment and USFWS has concurred with the BLM effects determination for the bald eagle. Management for the bald eagle is outlined in the Biological Assessment and USFWS has concurred with the BLM effects determination for the bald eagle.

Comment:

The BLM should revise its determination for regarding potential effects to the bald eagle.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM continues to believe that its determination regarding potential effects for the bald eagle is correct. Management for the bald eagle is outlined in the Biological Assessment and USFWS has concurred with the BLM effects determination for the bald eagle. Management for the bald eagle is outlined in the Biological Assessment and USFWS has concurred with the BLM effects determination for the bald eagle.

Comment:

The DBA says proposed action would have no effect on the Colorado pikeminnow and razorback sucker. Designated critical habitat for both fish species occurs in the planning area. Large volumes of additional sediment will be deposited into the San Juan River each year from surface disturbance throughout the watershed which will degrade existing pikeminnow and razorback sucker habitat within and down river of the planning area.

Barry Rhea, Rhea Environmental Consulting

Response:

Portions of the Colorado pikeminnow critical habitat occurs on FFO land but none of the razorback sucker critical habitat occurs on FFO land. The draft biological assessment states that the proposed action "may affect-not likely to adversely affect" the Colorado pikeminnow, razorback sucker, and Colorado pikeminnow critical habitat on FFO land. As indicated in the DEIS in Chapter 4, there may be increased sedimentation into water bodies as a result of the proposed action. These impacts would be minimized through the use of best management practices and pollution prevention measures. The EIS was expanded to include these measures in the mitigation section. Regarding the effects of sedimentation on native fish species in the San Juan River, the BLM agrees with the general finding that although the effects of sedimentation on native fish in the San Juan River have not been determined, it is generally believed that these fish are adapted to extremes and may tolerate high total suspended solids (TSS) concentrations (Holden and Masslich 1997). Management for the endangered fishes is outlined in the Biological Assessment, and USFWS has concurred with BLM effects determinations.

Comment:

BLM provides no discussion of habitat use of mule deer, elk, and antelope outside the SDAs. The proposed SDAs represent a very small portion of the planning area. The ability of the SDAs to serve as effective habitat for these species is highly questionable.

Barry Rhea, Rhea Environmental Consulting

Response:

Essentially all of the critical big game habitat and much of the remaining big game habitat is in the proposed SDAs. The SDAs represent the best habitat for mule deer and elk on FFO and were, for that reason, chosen for more detailed study. The BLM believes that the SDAs provide the best potential habitat for big game on FFO land and that management for these species in these areas has the best chance of success. Mule deer and elk habitat outside the SDAs would undergo the same types of impacts as described for these species and their habitat in the SDAs.

Comment:

There is no discussion of the role played by well pads, pipelines, and compressor stations in big game habitat fragmentation.

Barry Rhea, Rhea Environmental Consulting

Response:

Roads are the principal feature leading to habitat fragmentation on FFO land. Most pipelines run along the road rights-of-way and are, therefore, included with roads. Habitat lost due to wells is considered under Fisheries and Wildlife (see Table 4-6).

Comment:

As part of its stated focus on improving management of big game habitat, BLM should reduce the number of miles of roads in SDAs. Yet the RMP proposes to significantly increase the road density within the SDAs.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM has worked with oil and gas developers and other land users to eliminate unnecessary roads and to minimize to construction of new roads. If funding allows, it is the BLM's intention to pursue a more aggressive program of plugging and abandoning dry gas wells. This has the potential to create food plots for wildlife while decreasing road density and improving wildlife security.

Comment:

No information is provided that quantifies the residual effective habitat for deer and elk after implementation of the proposed action or alternatives.

Barry Rhea, Rhea Environmental Consulting

Response:

The estimated number of acres disturbed and functional habitat loss under the four alternatives appears in Table 4-6.

Comment:

BLM should clearly state its long-term objective for deer and elk in the planning area and demonstrate that the approach taken will meet that objective.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM has stated its objectives in terms of deer, elk, and other wildlife on the planning area on Page 2-11 of the DEIS. The management prescriptions for the wildlife SDAs appear in Table 2-5 of the DEIS.

Comment:

It seems highly unlikely that predation is a direct factor in the declines in the antelope populations.

Barry Rhea, Rhea Environmental Consulting

Response:

Coyote scat collected in the Angel Peak and Ensenada Mesa antelope areas in 1995 suggests that coyote predation is not a significant factor. However, these data, due to their limited nature were viewed with some skepticism (at the time of the DEIS preparation). Therefore, predation wasn't ruled out as a possible limiting factor of these antelope populations. Additional data collected in 2001 and 2002 suggest that forage quality, water availability, and roads may be affecting antelope recruitment. These data and management implications will be summarized in an antelope habitat management plan that is currently being prepared. This document will be available for public review/comment during the winter of 2003.

Comment:

BLM should state its goals for antelope in the planning area and demonstrate how the approach taken will meet the objectives.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM's objective is to provide the habitat needed to maintain a viable, self-sustaining antelope population. It is hoped that this can be realized by minimizing vehicle activity during the fawning period, limiting OHV use yearlong, coupled with habitat improvement measures such as water development, prescribed fire, seeding of forbs and cool season grasses, road closures, and possibly limited (short-term) coyote control. Augmentation of the existing antelope populations through antelope transplants may be necessary to enhance the genetic diversity of the present populations. Conducting a transplant of antelope to accomplish this would be the determination and responsibility of the New Mexico Department of Game & Fish.

Comment:

The long-term survival of mountain lions depends, in part, on the availability of large tracts of roadless habitat. Permanent loss of habitat, especially deer and elk winter range, may cause a reduction in the mountain lion populations.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM agrees that a reduction in the deer and elk populations as a result of the loss of habitat may affect mountain lion populations. Text was added to the FEIS to reflect this.

Comment:

The current condition of SDAs is far from pristine. These areas would be further compromised by further development. It is unlikely that the management approach in the EIS, under any of the alternatives, is adequate to meet the stated objectives of the BLM in regards to wildlife populations and wildlife habitat within the planning area.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM believes that with the management approach described under the proposed action and alternatives will have the best chance of meeting the wildlife management objectives as presented in the EIS and biological assessment.

Comment:

With the exception of the ACECs, the core of wildlife management within the large planning area will be the existing and proposed SDAs. The BLM has apparently written off wildlife that may occur in the approximately 90 percent of the planning area outside the SDAs.

Barry Rhea, Rhea Environmental Consulting

Response:

The BLM's analysis focused on the proposed SDAs because they are the best wildlife habitat in the high development area where most of the impacts associated with oil and gas development would take place. The approximately 524,000 acres of SDAs comprise about 35 percent of the land in the high development area.

Comment:

There is no apparent protection for raptors other then the golden eagle, ferruginous hawk, peregrine falcon, and prairie falcon on FFO land. Other raptor species identified in the planning area (SAIC 2000b) include northern harrier, sharp shinned hawk, Cooper's hawk, Swainson's hawk, red-tailed hawk.

Barry Rhea, Rhea Environmental Consulting

Response:

All raptors have protection under the Migratory Bird Treaty Act. BLM does not allow the destruction of active raptor nests during construction activities. Raptor species listed under the Endangered Species Act are discussed in the Biological Assessment. Monitoring and management for golden eagle, ferruginous hawk, prairie falcon, and peregrine falcon are outlined in the DEIS. The Migratory Bird Treaty Act provides adequate protection for other raptors.

Comment:

Given the negative impact that human disturbance has on raptor populations, it is likely that raptor populations, as a whole, are declining throughout the planning area. The DEI made no attempt to describe the current condition of raptor habitat.

Barry Rhea, Rhea Environmental Consulting

Response:

BLM has been surveying and monitoring golden eagles, ferruginous hawks, and prairie falcons since 1981, Peregrine falcons since 1991, and bald eagles since 1992. Abundance and nesting success has fluctuated probably due to weather conditions and cyclic prey abundance, but populations of ferruginous hawk and golden eagle have remained relatively stable. Peregrine falcon nest territories have increased as have apparent numbers of wintering bald eagles. There is no evidence to suggest that raptor populations are declining as a whole on FFO land.

Comment:

I can only assume that areas outside the SDAs have been at least equally if not more impacted by development activities. Current available breeding habitat for raptors in the wildlife SDAs is very limited.

Barry Rhea, Rhea Environmental Consulting

Response:

BLM implements a Raptor management Policy (Feb 1, 2000) for golden eagle, ferruginous hawk, prairie falcon, and peregrine falcon active nests between March 1 and June 30. The management policy prohibits major construction activities with ⅓ mile of an active nest such as well drilling, well workovers, pipeline construction, or other significant disturbances. Many active nests are near roads and road traffic has not been shown to deter or disrupt raptor nesting.

Comment:

No protection is given to suitable but currently unoccupied raptor habitat.
Barry Rhea, Rhea Environmental Consulting

Response:

Intensive oil and gas development has been taking place in the high development areas for a number of years. Raptors that nest in this area are adapted to this increased human activity and noise Results of raptor monitoring over the past 10 years indicates that raptors adapt to disturbed habitats within the high development areas. There is relatively little development taking place outside the high oil and gas development area (see Map 2-1). Suitable unoccupied habitat is available in this large area throughout the planning area.

Comment:

The current and proposed development will result in high-density, well-distributed disturbance across the planning area.
Barry Rhea, Rhea Environmental Consulting

Response:

The results of raptor monitoring indicate that raptors adapt to habitat disturbance in areas of high oil and gas development. Oil and gas development will essentially be confined to the high development area (see Map 2-1) and will not be well distributed across the planning area.

Comment:

No meaningful trend information is provided for any of the raptor species inhabiting the planning area. There is a potential for a decline in the ferruginous hawk breeding population because the number of breeding pairs has declined from seven (in 1997) to four (in 1999). The land manager must consider this trend as an indicator.
Barry Rhea, Rhea Environmental Consulting

Response:

BLM has been surveying and monitoring ferruginous hawks , golden eagles and prairie falcons since 1981, Peregrine falcons since 1991, and bald eagles since 1992. Abundance and nesting success has fluctuated due to weather conditions, but populations have remained relatively stable. There is no evidence to suggest that raptor populations are declining as a whole on FFO land. Ferruginous hawk monitoring from 1981 to 1985 resulted in an average of 5 active nests per year, and data indicates that the number of active ferruginous hawk nests has remained stable for the past 20 years.

Comment:

BLM ignored habitat outside the SDAs or about 90 percent of the planning area when analyzing the potential effects to songbirds, passerines and other avian species.
Barry Rhea, Rhea Environmental Consulting

Response:

The BLM's analysis focused on the proposed SDAs because they are the best wildlife habitat in the high development area where most of the impacts associated with oil and gas development would take place. The approximately 524,000 acres of SDAs comprise about 35 percent of the land in the high development area.

Comment:

No information provided regarding the loggerhead shrike population trends on FFO land.
Barry Rhea, Rhea Environmental Consulting

Response:

It is acknowledged that the loggerhead shrike populations on FFO have likely declined as they have in the rest of New Mexico. However, point count survey data collected during the spring and in the winter over 8 different survey routes in the FFO area suggest that loggerhead shrike populations are stable or possibly increasing. The number of loggerhead shrikes observed on these surveys are: 1999 – 2, 2000 – 1, 2001 – 1, 2002 – 6. These data, compared to BBS data collected in the FFO area and compiled by the USGS indicate that loggerhead shrike numbers have stabilized at a very low number. Shrike numbers for the past 10-12 years in the area southeast of Farmington appear to be holding steady. Monitoring for these birds will continue as part of the BLM's overall avian species monitoring effort.

Comment:

Current status of bird populations on planning area is not known.
Barry Rhea, Rhea Environmental Consulting

Response:

A summary of bird survey data is presented in Appendix O.

Comment:

DEIS does not describe the nature of road disturbances in cited studies. No discussion of habitat fragmentation on birds. DEIS does not discuss cowbird parasitism.
Barry Rhea, Rhea Environmental Consulting

Response:

The discussion of studies dealing with the effects of roads on birds was expanded per the comment. The EIS was expanded to include a discussion of habitat fragmentation on birds.

Comment:

Wildlife analysis is very cursory and unspecific.
Mark Pearson, San Juan Citizens Alliance

Response:

More details regarding wildlife resources on the planning area are provided in the "Biological Resources Technical Report Background Information on Biological Resources for the Farmington Draft RMP/EIS".

Comment:

Decreasing well spacing will lead to more habitat fragmentation which may result in an increase in brown-headed cowbird parasitism.
Janet Rees

Response:

The BLM agrees that decreasing well spacing will lead to increased habitat fragmentation, however effects on cowbird parasitism rates are subject to scientific debate. Recent research has found that cowbird parasitism does not necessarily increase with increasing fragmentation (Tewksbury et al. 1998) The EIS has been expanded to address potential impacts of brown-headed cowbird parasitism.

Comment:

BLM should consult the findings of Partners-in-Flight regarding obligate and semi-obligate bird species in pinyon-juniper and other habitats in the oil and gas development area.
Janet Rees

Response:

The BLM has working relationships with PIF, Hawks Aloft, and the New Mexico Department of Game & Fish. As the need arises these groups may be consulted for information or advice. The FFO is also knowledgeable with respect to the recommendations and information contained in PIF's "Draft Land Bird Conservation Plan" for New Mexico. Recommendations and findings provided within this plan will be considered by BLM in future land management activities.

Comment:

Livestock and wildlife have been poisoned by well discharges not properly fenced or covered.
Janet Rees

Response:

BLM has increased its attention to on-site compliance issues such as the fencing of well disposal pits and storage tanks on locations. Suspected poisoning of livestock or wildlife are investigated and remedial action taken.

Comment:

BLM must consider status of bear and mountain lion in the planning area.
Janet Rees

Response:

The DEIS briefly mentions the mountain lion and black bear in the planning area under "Fisheries and Wildlife" in Chapter 3: BLM has relatively little bear habitat. In those areas where bear are observed BLM attempts to maintain reliable sources of water, cover and food. Specifically, BLM uses thinning and RX fire to increase herbaceous vegetation, invertebrates, and small mammals. Gambel oak are managed for their mast production and in some thinning operations slash is left for potential denning sites. With respect to mountain lions it is felt that habitat improvements directed towards deer and elk will also benefit lions.

Comment:

Baseline data for small mammals, reptiles, and amphibians should be provided.
Janet Rees

Response:

Due to funding and personnel constraints, the BLM has no plans to conduct small mammal, reptile, or amphibian baseline surveys at this time.

Comment:

BLM should continue to monitor the gray vireo and other species to determine effects of habitat fragmentation.
Gary Markestad, XTO Energy, Inc.
Janet Rees

Response:

As indicated in the EIS, BLM conducted a 3-year monitoring study of the gray vireo on FFO land. This species was found at 54 locations and it is considered a fairly common species in the planning area. Further, most of these locations occur in fragmented pinyon-juniper habitat in high oil and gas development areas. Based on these surveys, the BLM FFO recommends that this species be removed from the State list of threatened species. In addition, this species has not shown a statistically significant annual rate of change on the Colorado Plateau (Partners in Flight 2000). Therefore, the BLM does not believe further monitoring of this species is warranted at this time.

Comment:

The FFO should provide ongoing monitoring for all special-status species given that effects cannot be predicted.
Janet Rees

Response:

The FFO currently monitors special-status species that have the potential to be affected by oil and gas development and other activities. These monitoring activities are described in the DEIS and biological assessment.

Comment:

The most recent data regarding bird species on FFO land should be included in the EIS.
Janet Rees

Response:

The FFO has point count survey data for all avian species encountered on 8 different survey routes within 5 different habitat types for the years 1999 to the present. A summary of these data has been included in the FEIS.

Comment:

Results of consultations with the USFWS should be included in the EIS.
Janet Rees

Response:

A summary of the Biological Assessment and other pertinent information related to FFO consultation with the USFWS for the RMP/EIS has been included in the FEIS.

Comment:

FFO should consult the BLM Colorado Plateau website.
Janet Rees

Response:

The BLM Colorado Plateau website was consulted. The FFO has conducted a study to assess the effects of compressor noise on birds in pinyon/juniper habitat. In addition, the FFO is currently developing an additional study to determine if compressor noise affects the nest locations of birds in pinyon/juniper habitat. The FFO is also monitoring the effects on avian species of thinning, burning, and reseeding with cool season grasses and forbs in a pinyon/juniper habitat type. The FFO recognizes the value of the pinyon/juniper habitat type to wildlife and is endeavoring to manage it accordingly.

Comment:

DEIS does not provide any information on the potential for increased brown-headed cowbird parasitism on various bird species on FFO land due to habitat disturbance.
Janet Rees

Response:

The potential affects of cowbird parasitism on the southwestern willow flycatcher appear in the biological assessment. It is also stated in this assessment that if the southwestern willow flycatcher were to nest on FFO land, measures to protect these birds from the brown-headed cowbird would be taken as required. Information has been collected regarding the occurrence of the brown-headed cowbird during breeding bird surveys on FFO land and this information has been summarized in the FEIS. The factors affecting cowbird demographics are a topic of scientific debate (see Tewksbury et al. 1998 as well as various papers in Morrison et al. 1999). Caution is necessary when trying to project cause and effect relationship across different habitat types.

Comment:

BLM should broaden the scope of its analysis to include all of the FFO area, not just the 13 wildlife SDAs.
Janet Rees

Response:

The scope of analysis in biological resources is not limited to the 13 SDAs. It includes a description of upland and riparian plant communities over the whole area, ACECs outside the 13 proposed wildlife management areas, and sensitive species outside the SDAs on FFO land. The BLM's impacts analysis on wildlife focused on the proposed SDAs because they are the best wildlife habitat in the high oil and gas development area where most of the impacts associated with oil and gas development would take place.

Comment:

No scientific analysis of the effects of habitat fragmentation.
Len Carpenter, Wildlife Management Institute
Janet Rees

Response:

578 Providing a scientific analysis of the effects of fragmentation in the San Juan Basin is problematic. Because of the extent of existing habitat fragmentation (both natural interspersion of structurally contrasting vegetation communities and historic oil and gas development) there are no large blocks of uniform undisturbed habitat which could serve as a baseline for rigorous comparison.

Comment:

Consider impacts to wildlife due to fragmentation.
Barbara Truby, Truby Ranch

Response:

Impacts to wildlife due to fragmentation are addressed in the DEIS.

Comment:

Roads not really bothering wildlife as much as indicated in the DEIS. Lack of vegetation due to building activities is the problem.

Barbara Truby, Truby Ranch

Response:

Comment acknowledged.

Comment:

Increased air pollution could result in increased acidity in precipitation resulting in the degradation of the Animas River watershed.

William Simon, Alpine Environmental Services

Response:

There is no evidence that oil and gas development and operation- or other land management activities on FFO land- have resulted in increased acidity in the precipitation.

Comment:

The primary effect of oil and gas exploration and extraction on native species is habitat fragmentation.

Forest Guardians

Response:

The BLM agrees and has assessed the impacts of habitat fragmentation on wildlife in the DEIS.

Comment:

RMP must develop OHV designations to maintain continuous blocks of undisturbed habitat.

Forest Guardians
Len Carpenter, Wildlife Management Institute

Response:

Chapter 2 provides specific details describing how OHV designations would be applied under each alternative. Due to more than 50 years of development, there are no large roadless areas in that portion of the FFO undergoing oil and gas development.

Comment:

BLM should complete inventories, compile available information on avian habitat needs, fragmentation, and the interrelationships in the ecosystems involved.

Janet Rees

Response:

As indicated in the EIS, BLM conducted a 3-year monitoring study of the gray vireo on FFO land. This species was found at 54 locations and it is considered a fairly common species in the planning area. Further, most of these locations occur in fragmented pinyon-juniper habitat in high oil and gas development areas. Based on these surveys, the BLM FFO recommends that this species be removed from the State list of threatened species. In addition, this species has not shown a statistically significant annual rate of change on the Colorado Plateau (Partners in Flight 2000). Therefore, the BLM does not believe further monitoring of this species is warranted at this time. The BLM's analysis focused on the proposed SDAs because they are the best wildlife habitat in the high development area where most of the impacts associated with oil and gas development would take place. The approximately 524,000 acres of SDAs comprise about 35 percent of the land in the high development area.

Comment:

If the proposed action were implemented, only 12 percent of the areas wildlife habitat would be further than a few hundred yards from the nearest road.

Kevin Drees

Response:

The impacts analysis indicated that under the proposed action, 12 percent of the land in the 13 proposed wildlife SMAs would be further than 0.25 mile from a roads while an estimated 48 percent of the land would be 660 feet from a road.

Comment:

Management to improve wildlife habitat is not even indicated as a primary issue in the RMP but appears, instead, to be a subset of oil and gas development.

Mark Pearson, San Juan Citizens Alliance

Response:

Wildlife management on FFO land is a distinct program and is not a subset of oil and gas development. See "Special Status Species," "Wildlife and Wildlife habitat," and "Riparian" under "Continuing Management Guidance" for details on the management of biological resources on FFO land.

Comment:

An assumption is being made to eliminate the open designation, an assumption that is not backed up by facts.

Derek Cooper

Mark Pearson, San Juan Citizens Alliance

Response:

The text in question does not mention the elimination of open designation.

Comment:

There is a lack of baseline data on current wildlife populations.

Mark Pearson, San Juan Citizens Alliance

Response:

The BLM has conducted long-term monitoring of wintering bald eagle and nesting peregrine falcons on FFO land and has trend data for these species. It has initiated long-term monitoring of other sensitive raptors such as the ferruginous hawk, golden eagle, and prairie falcon and will obtain trend data from these studies. The number of active ferruginous hawk nests in 1999 was 5, which is the same as in 1998. As indicated in the comment, this study has not yet been conducted long enough to determine any meaningful trends. Therefore, the BLM believes it is premature to make statements about potentially declining ferruginous hawk populations.

Comment:

A weakness throughout the study has been reliance on professional judgments to justify various changes in present practices in terms of expanding existing special management areas and to restrict access through controlling surface use or no surface occupancy.

Gary Brink, Energen Resources Corporation

Response:

The major expansion of special management areas for biological resources is the expansion of wildlife SMAs under the proposed action. Survey data has indicated that these areas are important big game habitat (i.e., critical winter range and important pronghorn antelope habitat) and there is evidence that the mule deer populations on FFO land are on the decline. The analysis of present and future oil and gas operations under the proposed action indicate that habitat loss and fragmentation will increase in this important big game habitat over time. The expansion of the wildlife SMAs under the proposed action with surface occupancy constraints is consistent with BLM's responsibilities regarding wildlife management on FFO land.

Comment:

DEIS fails to consider other activities in the San Juan basin in terms of cumulative impacts.
Mark Pearson, San Juan Citizens Alliance

Response:

The cumulative impacts analysis focused on oil and gas development on non-federal land in the planning area. As indicated in the cumulative impacts section, decisions about other actions in the planning area in terms of locations, timing, and magnitude are not well known.

Comment:

Roads disrupt wildlife migration and break up the habitat of animals that will not cross roads.
Alicia Malone

Response:

The effects of roads on wildlife population was addressed in some detail in the DRMP-EIS and supporting Biological Resources Technical Report.

Comment:

Any possible way to minimize roads and improve the number, size, and connectivity of these fragments.
Bill Day

Response:

A mitigation section was added to the EIS which includes measures to reduce the number of miles of new roads and eliminate unnecessary roads.

Comment:

Habitat fragmentation can lead to additional poaching.
David Weingarten, NM Wildlife Federation

Response:

Such an effect was discussed in the "Biological Resources Technical Report."

Comment:

The last fragments of the areas of undisturbed wildlife habitat must be protected. The new roads that would need to be built for this project would reduce by half the already shrinking habitat for elk, deer and other wildlife.
Susan Wible

Response:

As indicated on Table 4-6 of the DRMP-EIS, the amount of land disturbed in the 13 proposed wildlife SMAs would increase from 4.8 to 6.9 percent for the proposed action. Functional habitat loss 660 feet from roads would increase from 46 to 52 percent and 1,320 feet from roads 75 to 88 percent under the proposed action.

Comment:

Habitat fragmentation and increased noise pollution are detrimental to wildlife.
Jan Holt

Response:

The effects of roads on wildlife population was addressed in some detail in the DRMP-EIS and supporting "Biological Resources Technical Report."

Comment:

There is little indication in the DEIS of the effects of past management, the current conditions within these ecosystems, or the status of the species that inhabit them.

Mark Pearson, San Juan Citizens Alliance

Response:

The BLM disagrees with these generalizations. The effects of past oil and gas development and operations particularly in critical big game habitat is addressed in some detail in the DEIS and background report. The effects of past, current, and future management on federally listed species that occur or have the potential to occur on FFO land has also been addressed in detail in the DEIS and biological assessment. The BLM has conducted long-term monitoring of these species and provided mitigation to reduce the potential impacts of resource management activities on these species. The BLM has also conducted surveys for others sensitive species and non-game birds and taken measures to protect these species.

Comment:

The DEIS fails completely to thoroughly analyze the impact of oil and gas development on wildlife populations and their habitats.

Mark Pearson, San Juan Citizens Alliance

Response:

The BLM also disagrees with this generalization. As the commenter notes, the BLM did do a thorough discussion of the potential impact of roads associated with oil and gas development. It should be noted that that the DEIS does not conclude that the proposed oil and gas development will have minimal impact on wildlife populations as indicated in the comment. The DEIS does state that the degree of impact of current and projected oil and gas development cannot be quantified and provides reasons for this. See effects of oil and gas leasing and development under fisheries and wildlife under Alternative A. Much of the uncertainty regarding the level of this impact is related to the lack of site-specific data. The BLM has also analyzed the impacts of oil and gas development on sensitive species and sensitive species potential habitat and has taken measures to protect them from development. This includes species such as the Knowlton's cactus, Mesa Verde cactus, Mancos milk vetch, Aztec gilia, Brack's fishhook cactus, bald eagle, golden eagle, peregrine falcon, prairie falcon, ferruginous hawk, Mexican spotted owl potential habitat, mountain plover, gray vireo, southwestern willow flycatcher potential habitat, yellow-billed cuckoo potential habitat, western burrowing owl, and various species of bats.

Comment:

What is justification for establishment of Mexican spotted owl ACEC?

Gary Brink, Energen Resources Corporation

Response:

BLM cooperates with the USFWS in the preservation of species as outlined in the Endangered Species Act. BLM proposes to establish the Laguna Seca Area of Environmental Concern (ACEC) to protect and manage the USFWS designated Mexican spotted owl critical habitat in accordance with the 1995 Recovery Plan for the Mexican Spotted Owl (MSO). The Biological Assessment (BA) analyses the impacts of the RMP Revision to the MSO and the management actions planned. A MSO was detected in the designated critical habitat during the summer of 2002 - see BA Pages 5-53 to 5-55. The USFWS has concurred with MSO management and effects determination as outlined in the BA.

Comment:

Other species, including raptors, would also be negatively impacted by road density.

David Weingarten, NM Wildlife Federation

Response:

The BLM has taken measures to limit road construction in some raptor habitat such as bald eagle wintering habitat, riparian areas, potential Mexican spotted owl habitat. In addition, a large part of the planning area is outside the high oil and gas development area an new road construction in this area will be minimal.

Comment:

Only 12 percent of the areas wildlife habitat would be further than a few hundred yards from the nearest road.

Jane McGarry

Response:

The impacts analysis indicated that under the proposed action, 12 percent of the land in the 13 proposed wildlife SMAs would be further than 0.25 mile from a roads while an estimated 48 percent of the land would be 660 feet from a road.

Comment:

Construction of 800 miles of road will fragment habitat and clearing of 44,000 acres of land will shrink refuge to wildlife.

Alicia Malone

Response:

The effects of roads on wildlife population was addressed in some detail in the DRMP-EIS and supporting "Biological Resources Technical Report."

Comment:

Remaining wildlife habitat cannot stand additional fragmentation.

Chris and Patty Isensee

Response:

The effects of roads on wildlife population was addressed in some detail in the DRMP-EIS and supporting Biological Resources Technical Report.

Comment:

The Draft RMP is totally lacking in any meaningful wildlife enhancement plans other than oil and gas timing limitations, and as such, doesn't answer the scoping question on Page 1-11 for management of SDAs.

J.D. Barnett
Cheryl Eckhardt, National Park Service, Intermountain Region

Response:

The questions to be answered, as stated on Page 1-11, require that areas and resource values be identified and management be defined. Both have been done in the Draft RMP/EIS. Some wildlife enhancement plans have already been developed and would continue to be implemented. Monitoring of populations and trends will continue. BLM does not believe that it can require additional limits on oil and gas development in the Wildlife Areas because the land is already leased. Additional information on the impact to migratory birds has been added to the PRMP/FEIS.

Comment:

The document lacks measures to prevent of wildlife habitat fragmentation caused by construction of roads, power lines, and pipelines or an assessment of these impacts.

Charlene Anderson
Len Carpenter, Wildlife Management Institute

Response:

The likely increase in wildlife habitat fragmentation is documented in the Biological Resources sections under each alternative in Chapter 4 as well as a qualitative discussion under Cumulative Impacts. BLM believes that it cannot deny access to existing leases in many cases. Where possible, no surface occupancy constraints or limitations on new leasing have been proposed to reduce damage to surface resources including wildlife habitat.

Comment:

The scientific paper cited in SAIC (2002b) by Rost and bailey (1979) is woefully outdated.
Thomas Mullins, Synergy Operating, LLC

Response:

The BLM believes that Rost and Bailey (1979) in combination with other references in SAIC (2002b) provides an up-to-date analysis of potential effects of roads on deer and elk. Even though this study is over 30 years old, it is still cited in the some of the recant scientific literature regarding the effects of roads on deer and elk that were also cited in SAIC (2002b).

Comment:

The one noteworthy exception to use of the best available information in the DEIS is its reference to the published, scientific literature on the adverse effects of roads on the environment, particularly wildlife. In this area the DEIS demonstrates familiarity with the pertinent scientific literature that documents extensive adverse road impacts on wildlife. However, even after a review of previous scientific studies that suggest a high likelihood of significant adverse effects on wildlife, the DEIS concludes that only minimal effects are anticipated (see p. 4-30). Providing a thorough laundry list of the types of impacts expected to be generated by oil and gas development is necessary but, by itself, not sufficient for NEPA purposes. The extensive oil and gas development proposed under all Alternatives does not meet the agency requirement for environmental protection. In addition, the BLM is responsible for quantifying the magnitude of those impacts and proposing mitigation efforts.
Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

In addition, the mitigation measures established in the DRMP are considered appropriate and reasonable to reduce the impacts associated with oil and gas development.

Comment:

I could find no evidence in the DEIS that baseline data exist for individual species populations or their habitats. In the absence of baseline information, the environmentally responsible course of action would be to collect such information prior to development.
Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

While the BLM acknowledges that more baseline data on wildlife populations and trends are needed, development will continue to occur, as described under the No Action Alternative. The Preferred Alternative, while allowing additional oil and gas development, also proposes new wildlife areas and other SDAs to protect surface resources, as well as additional monitoring, which could result in the implementation of new mitigation measures through adaptive management, if determined to be needed.

Comment:

The DEIS lists a number of potential sources of stress on wildlife populations following oil and gas well projects. However, after listing these multiple sources of stress, little qualitative, and no quantitative, analyses are conducted. There is no attempt to relate the amount of habitat lost to the expected change in population numbers or population distribution for any species. There is no analysis of the possible cumulative or synergistic (combined effects are greater than the sum of the parts) effects that can arise from multiple stressors acting simultaneously on a wildlife species.
Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

Without complete baseline data, the possible impacts can be identified, but further monitoring is needed to document the trends and determine mitigation measures, if needed.

Comment:

For species that are currently listed or candidates for listing under the Endangered Species Act, some sort of population viability analysis (PVA) should have been conducted. A minimal analysis requires, for each species, a definition of suitable habitat, a mapping of the spatial distribution of the habitat, an estimate of local population sizes, and general information on the movement and dispersal ability of the species. This information is required for a minimally defensible PVA.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

The Biological Assessment (BA) prepared as part of this project defines suitable habitat and estimates local population sizes and spatial distribution for species listed under the Endangered Species Act (ESA) based on surveys conducted by the BLM staff. BLM concluded within the B A that the implementation of Alternative D would result in a may affect - not likely to adversely affect - determination for species listed under ESA. The U.S. Fish and Wildlife Service concurred with the BA. A summary of the BA is included as an appendix to the PRMP/FEIS.

Comment:

The DEIS lists fragmentation as a potential adverse effect arising from the oil and gas projects but falls to discuss it in detail. The DEIS only provides estimates of the area of habitat affected, directly and indirectly, by oil and gas development. Presumably, no spatial analyses of changes in habitat distribution were conducted. Sources of fragmentation, such as those arising from road construction, well pads, and OHV traffic, are likely to have more severe adverse consequences and should be evaluated in greater detail.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

Because the location of projected wells, roads, pipelines, and cross-country OHV travel over the planning period of 20 years is not known in more detail than the small scale described in the DRMP/EIS, spatial analyses of changes in habitat cannot be conducted except in general qualitative terms. Due to market fluctuations and industry choice, oil and gas development cannot be specifically located more than one or two years in advance. When site-specific locations are known through Applications for Permits to Drill, site-specific environmental analyses will be completed.

Comment:

Even in the absence of detailed life history and behavioral data to assess fragmentation effects, general conservation principles are often useful. For example, it is possible to ordinarily rank species on the basis of their degree of risk to habitat loss and fragmentation based solely on general information on ecology and life history or similarities to well studied species. For example, if a species is known to occur in distinct local populations and to have limited dispersal capabilities, then it is likely to be a greater risk than a common species that can disperse long distances. Also, large bodied species with large home ranges are also more vulnerable to fragmentation effects. Several schemes for ranking the relative risks to persistence faced by species with diverse ecological characteristics have been developed by state, federal, and nongovernment organizations. One of these ranking schemes should have been used in this DEIS as a way to identify those species requiring more detailed assessment.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

It is questionable whether the use of the recommended ranking schemes would result in better analyses or resulting effects determinations than that included in the DRMP/EIS without the baseline data specific to the planning area that the BLM already acknowledges is needed.

Comment:

Given that the fragmenting agents in the proposed oil and gas project will remove native vegetation, introduce exotic plants, increase the amount of bare and compacted soil, and increase levels of human harassment, it is highly unlikely that any effects will be positive.

Barry Noon, Colorado State University, Dept. of Fishery and Wildlife Biology

Response:

Under the Preferred Alternative, the BLM would use native vegetation to stabilize disturbed soils, require weed management plans to minimize the introduction and spread of exotic plants, and encourage new technology designed to reduce the size of well pads (bare soil) and minimize traffic for maintenance activities that would increase human harassment of wildlife. While impacts would still result, the goal is to reduce the impacts below the level of significance where possible.

Comment:

I would like to see provisions for periodic monitoring of different species to evaluate the extent of population declines that are anticipated. If 20 years pass before we know the numbers, we may lose some species altogether in this area.
Janet Rees

Response:

Monitoring of wildlife populations has been conducted by the BLM and other agencies in the planning area and is expected to continue.